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# THE CAVALRY JOURNAL

A member of the Provisional Reconnaissance Troop, 3d Infantry Division, Italy.

MAY-JUNE, 1944

# MODERN RECONNAISSANCE

This long awaited and much needed book has been compiled and edited by *The Cavalry Journal* staff.

Many of the articles are based upon personal combat experiences. All of them contain valuable information and training data for reconnaissance units. They include training material for the squadron, troop, company and platoon . . . reconnaissance methods for the infantry division, the armored units, and the T-D battalions . . . reconnaissance peculiar to the desert, the jungle, and street fighting. . . .

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# "Are Horses Essential

*by Major P. D. Eldred**

THERE were plenty of "ducks" and trucks to move supplies across the Sicilian beaches and haul them up the highways. And when the armor landed, there was enough of that, too. But when the Seventh Army started fighting its way through Sicily's precipitous mountains, there were two things it did not have—pack transport and horse cavalry.

It was not long after the Americans hit the beaches before everybody, from the Commanding General down, realized that Sicily's tortuous terrain was a "natural" for pack trains and horse cavalry. Without them, supply was a back-breaking problem; reconnaissance was made difficult. Heavy weapons sometimes lagged behind the infantry, and pursuit of the retreating Germans was never quite fast enough to accomplish their destruction.

*Hq. Seventh Army.

As a result, some of the German forces eventually escaped across the Strait of Messina and lived to fight another day against Allied troops in Italy.

The invasion of Sicily on July 10 probably was as thoroughly planned an operation as American troops had ever undertaken. Every piece of motorized or mechanized equipment that conceivably could be used was provided. The speed with which the island was conquered (thirty-eight days) attested to the efficiency of operational planning.

Because pack transport and horse cavalry were not available, however, they were not included in this operational planning. One infantry division, anticipating supply problems, did bring 90 burros across from North Africa, but these light animals could not handle the job.

After the Sicilian operation was actually under way and fighting had progressed into rugged mountain terrain, with supply hampered by inadequate roads, blown

***Below:*** **Mounted French Moroccan troops move to the front in Sicily.** ***Top insert:*** **Lieutenant General Omar S. Bradley.** ***Lower insert:*** **Lieutenant General George S. Patton with Brigadier General Hobart Gay in background.**

# al in Modern War?"

bridges and mine fields, it was necessary hastily to improvise pack trains. A limited number of mules and horses were hurriedly rounded up, hauled to the front in trucks and, with inadequately trained personnel, put into service. Naturally, the result, while helpful, was far from satisfactory.

At the conclusion of the campaign, LIEUTENANT GENERAL GEORGE S. PATTON, Commanding the Seventh Army, and his corps and division commanders made some significant comments on the need for pack transport and horse cavalry in mountainous terrain.

GENERAL PATTON summed up his conclusions as follows:

"In countries such as Sicily, it is almost necessary to have pack animals.

"In almost any conceivable theater of operations, situations arise where the presence of horse cavalry, in a ratio of a division to an army, will be of vital moment.

"It is the considered opinion, not only of myself but of many other general officers who took their origin from the infantry and artillery, that had we possessed an American cavalry division with pack artillery in Tunisia and in Sicily, not a German would have escaped, because horse cavalry possesses the additional gear ratio which permits it to attain sufficient speed through mountainous country to get behind and hold the enemy until the more powerful infantry and tanks can come up and destroy him."

MAJOR GENERAL M. S. EDDY, commanding the 9th Infantry Division, went into more detail on the subject:

"Infantry can advance only so far without receiving its daily supplies of water, ammunition and food. In this (the Sicilian) campaign, even in the case of infantry advancing along a main road, the advance was temporarily held up, primarily because of the difficulties of supply.

"Because practically all bridges had been blown and the terrain was such that motor vehicles could not be used until engineers had constructed long and difficult by-passes, pack mules had to be employed.

**Major General Lucien K. Truscott is shown in conference with General Bradley during operations in Sicily.**

"A conglomeration of pack equipment was finally collected that was neither adequate nor efficient. Inexperienced packers did the best they could, and the drain on manpower to furnish packers and mule leaders was quite heavy. To obviate these difficulties in future operations, the following recommendations are made:

"1. Provide organized pack trains for any operation where mountainous terrain is to be encountered. These units could be in corps or army reserve, to be attached to divisions as needed.

"2. In case organized pack units are not available, provide a stock of American pack equipment, including special pack saddles for the six loads of the 75mm mountain howitzer and for the heavy weapons of the infantry. Again, the stock could be held in army dumps to be issued as needed.

"3. Provide units with pack equipment and mules on a loan basis during their training period before an

## "YES," say the generals from the Sicilian Campaign

# The Cry for Horses

★

Despite mechanization of modern weapons of war, the value of the horse on the field of battle has been dramatically rediscovered during the past winter and has been the difference between success and failure on the Russian front.

It is an old cavalry axiom that a horse can go wherever a man can travel, and this is still not true of the tank, truck—or even the faithful jeep. This winter on the Russian front, horses have packed men, munitions, supplies and weapons over impossible and practically impassable terrain. Pulling wagons, sleighs, caissons and guns, horses have kept pace with the Red Army.

In Italy the cry for horses, mules, and more horses became almost a howl during the past winter months as troops operating in treacherous mountain country faced the problem of packing in food, ammunition and other supplies and packing out wounded men. Once again the horse filled the vital need, and many an old cavalryman watching man's beast of burden pass a column of mud-embedded motor transport smiled a knowing smile and kept his peace.

The German army has used the horse to supplement its motor transport from the first day of war, and on the Eastern front has developed the use of animal-drawn vehicles to a scale almost equalling that of World War I. In China, both the Japanese and Chinese find the military value of the horse undiminished when used to support campaigns in mountainous terrain. And the god of war, still crazy over horses, has given many a recent victory to the army commander who has been able to assemble sufficient animals to meet the needs of the military situation—planes, trucks and tanks notwithstanding. — *Stars and Stripes*, 25 March 1944.

operation in order that instruction in packing may be given."

Major General L. K. Truscott, Jr., commanding the 3d Infantry Division, in discussing lessons learned by his division, said:

"The 3d Division landed at Licata with about 90 burros brought from Africa. The burros were gradually discarded and replaced by both mules and horses. At the end of the Palermo phase we had accumulated a number of horses and mules equipped with captured and improvised pack saddles. Losses and wastage among these pack animals were extremely high because of the crude improvisations and the lack of trained personnel in the division to handle them.

"During the final advance on Messina, it was necessary to increase greatly the number of pack animals. They were in constant use supplying elements engaged in flanking movements through the mountains."

At the end of the Sicilian Campaign on August 17, the 3d Division had on hand 301 pack mules, of which 48 were unserviceable. In all, the division used about 500 pack animals during the final phase of the campaign. The division also had 115 horses, of which 34 were unserviceable.

General Truscott added:

"The need for mounted reconnaissance and combat elements to work in close coöperation with the infantry in rough terrain was no less marked than the need for pack animals. The need for such elements . . . is obvious. However, such elements cannot be improvised in combat from untrained personnel, although we made strenuous efforts to do so. Considerable use was made of riding animals for command and communication purposes and, to a very limited extent, for scouting.

"I am firmly convinced that if one squadron of horse cavalry and one pack troop of 200 mules had been available to me at San Stefano on August 1, they would have enabled me to cut off and capture the entire German force opposing me along the north coast road, and would have permitted my entry into Messina at least 48 hours earlier."

During the campaign, General Truscott organized a provisional mounted troop and a provisional pack troop and began training personnel in animal management in order to provide more efficient and economical handling of animal transportation.

The provisional mounted troop consisted of troop headquarters and three reconnaissance platoons of three squads each. The provisional pack troop had about 250 serviceable pack mules. Both units were under a competent cavalry officer. Pack equipment included Phillips packs as well as captured equipment of the French Army type.

After the campaign, General Truscott recommended

that the division be authorized to organize a mounted troop and a pack troop on a provisional basis.

General Truscott concluded by making the following remark:

"I am firmly of the opinion that if future operations contemplate the employment of this division in terrain approaching that encountered in the Sicilian operation, that these organizations (pack, mounted reconnaissance and combat units) will be worth their weight in gold."

General Eddy stated:

"The heavy weapons company must be the base of advance of the entire infantry battalion; therefore, to facilitate the advance of the battalion, it must be driven home to those responsible for the organization and equipment of the infantry battalion that heavy weapons cannot be manhandled and still keep up with the advance of rifle companies. Weapons carriers can go only so far in mountainous terrain, and their use is limited. Their use is also limited by swamps and jungles in other types of terrain.

"In many instances in this campaign and in the Tunisian campaign, the weapons carrier drew hostile artillery fire and, from that point, the heavy weapons had to be carried by personnel unless pack mules were furnished.

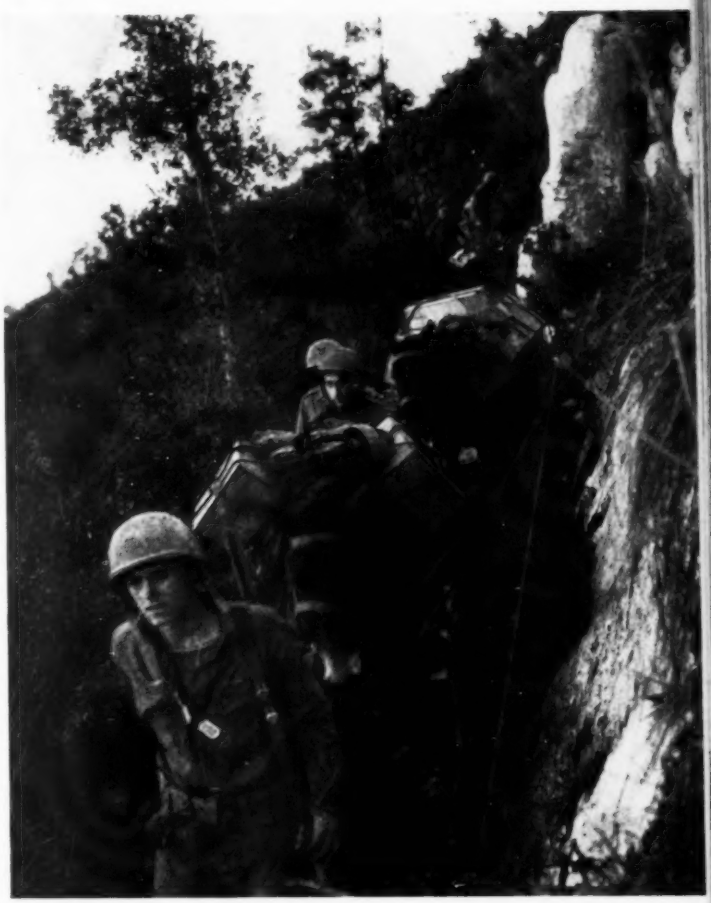
"Whenever pack mules could be secured or spared from supply functions they were furnished to heavy weapons companies, and in such instances, the heavy weapons companies had no trouble keeping up with the rifle companies. Whenever the heavy weapons had to be carried by hand, the heavy weapons company lagged behind."

Major General Eddy recommended that heavy weapons companies should have as part of their standard equipment the necessary pack equipment to be used when packing heavy weapons becomes necessary. "Mules," he said, "were always easily secured in North Africa and Sicily, and mules and horses will be available in Europe."

Lieutenant General O. N. Bradley, commanding the II Corps, also noted that infantry divisions had successfully employed pack mules. He concluded:

"In contemplated operations in mountainous terrain, plans should include facilities for supply by pack train."

That which has been said of Sicily was equally true in Tunisia and of the mountainous terrain of Italy and probably of the jungles and swamps of the Southwest Pacific. With the added difficulty of rainy seasons, there is no question but what serious terrain problems will present themselves in any theater of operations. Knowing this and bearing in mind "that you get on the roads to march and must get off the roads to fight," what is the answer to the question, "Is Pack Transport and Horse Cavalry Essential in Modern Warfare?"



**Beyond the "jeep line" in Italy a mule pack train winds its way up the mountain side with supplies for troops. It will take about four hours to make the tedious five-mile trip.**

### Improvised Cavalry in Italy

***"A certain ingenious general, an old cavalryman, now commanding infantry, has organized a battle-strength cavalry troop with commandeered horses and pack mules to smoke out the Germans in isolated areas. This general has had to turn infantrymen and artillerymen into cavalrymen to accomplish his purpose. While there are a few dead mules and horses lying about, this anonymous general (Editor: Major General Lucien Truscott, Commander 3d Infantry Division) has been very successful with his makeshift cavalry.***

***"It would seem obvious that, in regions where mechanized warfare breaks down because of lack of communications, horses and mules would speed up the task of harassing and defeating the enemy, but there is no sign that the masterminds of this war, who are determined that the war shall roll on wheels even when it can't, intend to use cavalry in any large way."—Frank Gervasi,* Collier's, *December 18, 1943.***

# TANKS IN SICILY

*by Lieutenant Colonel W. B. Goddard**

UNTIL American forces began their large-scale amphibious operations in the North African-Mediterranean Theater, it had been customary to think of tanks in the rôle of massed power, driving deep into the enemy's rear areas, crushing his resistance, overrunning his positions and disrupting his communications.

*G-3 Section, Hq. Seventh Army.

But there are other missions, perhaps not so spectacular, but equally as important to the defeat of the enemy, which are now recognized as vital to successful operations. Of these, none is more important than the support that tanks are able to give infantry units.

### With the Initial Landing

In operations such as the Sicilian invasion, tanks are an essential element of a force landing on a hostile

**M-4 and M-5 tanks (not shown in picture) fire from a Sicilian valley at a pillbox on opposite hill just before it fell, July 1943. Infantry can be seen on road to right. This is an example of tanks employed in support of infantry attack.**

shore. Initially, the fire power of the medium tank provides the support necessary to the infantry until field artillery can be landed and moved into position.

It is obvious that a mobile force, with adequate fire power and capable of moving forward rapidly and aggressively, is of utmost importance in driving the enemy back for a sufficient distance from the beach to make possible the placing of field artillery in suitable positions. In the performance of this mission, tanks play a key part in successful landing operations.

It is needless to say that any kind of moral support for the infantry during this critical phase of combat is most welcome.

### Against Enemy Counterattacks

After the initial landing has been made and the beachhead established, the landing force must be prepared to repulse enemy counterattacks. Here again, the tank takes a prominant rôle.

In the landing of the 1st Infantry Division at Gela, Sicily, American tanks played an important part. The terrain around Gela was not suited to mass attacks by medium tanks, but the tanks initially landed were used very effectively to repel strong German counterattacks on the second day. These attacks were broken up only a short distance northeast of Gela.

**In the 38-day Sicilian campaign tanks of the 2d Armored Division performed many valuable missions other than the spectacular "blitz" from Agrigento to Palermo.**

### With Amphibious "Loop" Landings

In addition to amphibious landings, such as the actual invasion of Sicily, there are special amphibious operations in which tanks may be employed in support of ground forces. On three different occasions, this type of special operation was used in the Sicilian Campaign along the north coast while the Seventh Army was advancing east toward Messina.

The axis of advance was the twisting coastal road, which closely follows the shoreline. Precipitous mountain ranges drop abruptly to the sea and, in places, the road actually is notched from the cliffside. The terrain is ideal for enemy delaying actions, successively defending well-chosen positions.

On each of the three occasions where special amphibious operations were used, the terrain encountered was such as to prevent successful execution of a frontal attack, or to envelop the enemy left (south) flank, without excessive cost. But, by amphibiously "looping" up the coast and landing task forces in the rear of German positions, it was possible to force enemy withdrawal and continue the advance of the main attacking force. Tanks included in these special task forces rendered fire support to the infantry and helped to repulse German counterattacks. They were credited with contributing largely to the success of the operations.

An M-4 tank of the 2d Armored Division advances into the town of Sceaco in western Sicily July 20.

An armored unit moves through Palma, Sicily July 11—the day after initial landings.

### With Infantry Attack

The mountainous terrain of Sicily tended to canalize the movement of tanks in most areas. There were certain areas, however, where tanks could be used to advantage in assisting the infantry in gaining ground by making lightning thrusts, closely followed by the infantry assault. In such cases, and whenever such an attack was made, the objective was taken.

The conditions favoring attacks of this nature presented themselves so seldom that the enemy never knew when to expect a tank attack. As a result, at times when Allied tanks were not being used, many German antitank guns, set up well forward to destroy tanks, were overrun by the infantry. In the latter stages of the campaign, German losses of antitank guns were considerable. This might be described as an indirect means by which tanks aided in the defeat of the Germans.

At times during the Sicilian Campaign a light tank battalion and a company of medium tanks were attached to the 1st Infantry Division. In general, these tanks were very successful in clearing out enemy strongpoints, artillery, and even personnel. On many occasions, the 1st Infantry Division used this tank force advantageously.

### Light Tanks in Support of Infantry

The light tanks of a reconnaissance squadron proved to be most essential to the squadron in accomplishing some of its assigned missions. Also, on several occasions, these tanks were of valuable assistance in expediting the advance of adjacent infantry units, by moving quickly around the flank and knocking out enemy machine gun positions that were cleverly located to delay the advance of our infantry.

**This tank and crew was a part of the amphibious force landed behind German lines at Cape Orlando on the north coast road August 7. It is shown here plunging ahead to intercept German units retreating toward Messina.**

Lieutenant General George S. Patton, Jr., commander of the Seventh Army during the Sicilian Campaign, tells of one notable instance in which light tanks, supporting infantry units, proved of utmost importance to the 1st Infantry Division:

"During the Sicilian Campaign a very interesting tank action took place between Butera and Mazzarino. Some 14 German Mark IV tanks attacked a regiment of the 1st Division while the regiment was deployed and in no position to repel the attack. These veteran soldiers, however, merely took cover and the tanks passed through them without doing any particular damage. These German tanks then turned to the north along the axis of retreat of the enemy. In so doing they came in contact with about 30 light tanks of one of our GHQ battalions. In the ensuing fight, at extremely short range, the 14 German tanks were destroyed. Our losses were three light tanks, none of which were damaged except in their running gear."

### New Tank Tactics

This article has mentioned some of the various situations in which tanks are called on to assist the infantry. Authorities on tank operations, alert to evolutionary changes, believe that the pendulum has swung in the opposite direction and that now the infantry must assist the tanks to obtain the best results from this powerful weapon.

As an example of successful tank-infantry employment, General Patton cites the following example:

"The operation of the Provisional Corps in the taking of Palermo was a classic example of this method of using tanks. Initially, the tanks were held back so that the enemy was unable to determine in which direction the 2d Armored Division would operate. When the infantry of the 3d and 82d Divisions had secured an open flank, the 2d Armored Division moved rapidly around it, and during the day of July 22 advanced some 69 miles in about 12 hours. In the course of this move they had to overcome four distinct enemy positions."

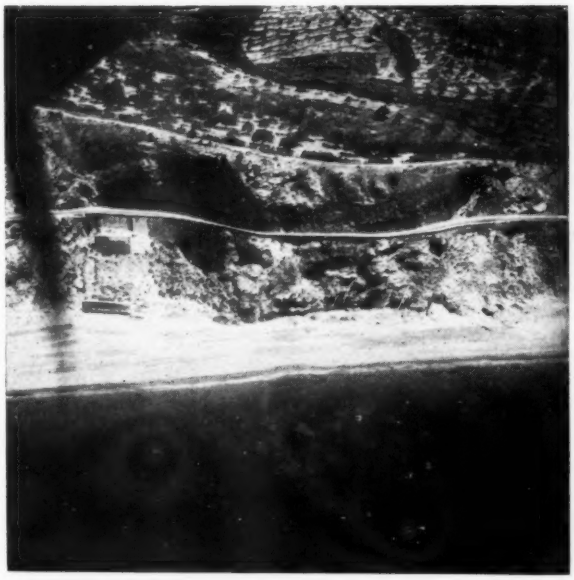
In considering the employment of tanks, General Patton cautions:

"There must be a careful differentiation between armored divisions and GHQ tank battalions; both are necessary. The GHQ tank battalions are used primarily for the purpose of supporting infantry, so that the integrity of the armored division is not destroyed. The present homogeneity of the battalions, however, makes it possible to add GHQ battalions to armored divisions when the circumstances demand additional armored force."

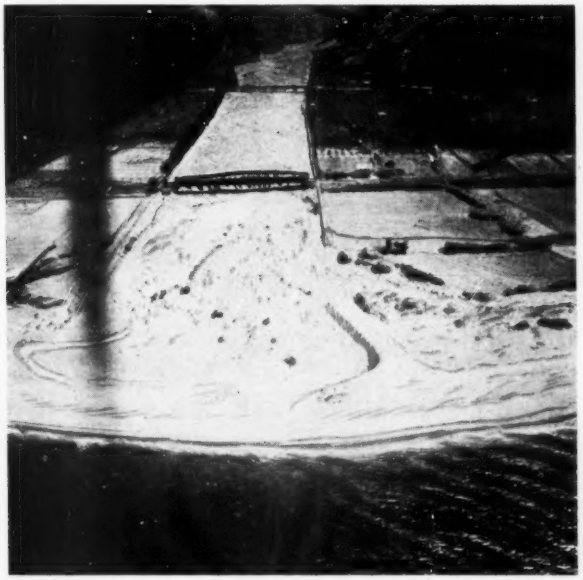
This discussion of the use of tanks in the Sicilian Campaign calls attention to some of the many ways in which tanks must be prepared to work with the infantry in defeating the enemy. All are based on the accurate employement of fire power and aggressive action to the highest degree.

# Sicilian Terrain

When the Seventh Army was advancing east toward Messina, the main axis of advance was the twisting, coastal road which closely followed the shoreline. This picture, taken of an area 45 miles west of Messina, shows the typical terrain over which the advance was made. A railroad bridge and a highway bridge can be seen close to the water's edge.



In a great many places along the coastal highway, precipitous mountain ranges dropped abruptly to the sea, and often the road was actually notched from the cliffside.



The second amphibious landing in rear of a securely held German position was made on this beach. The landing referred to was probably that at Brola, August 11th.

# Reco

## —Activities o Re
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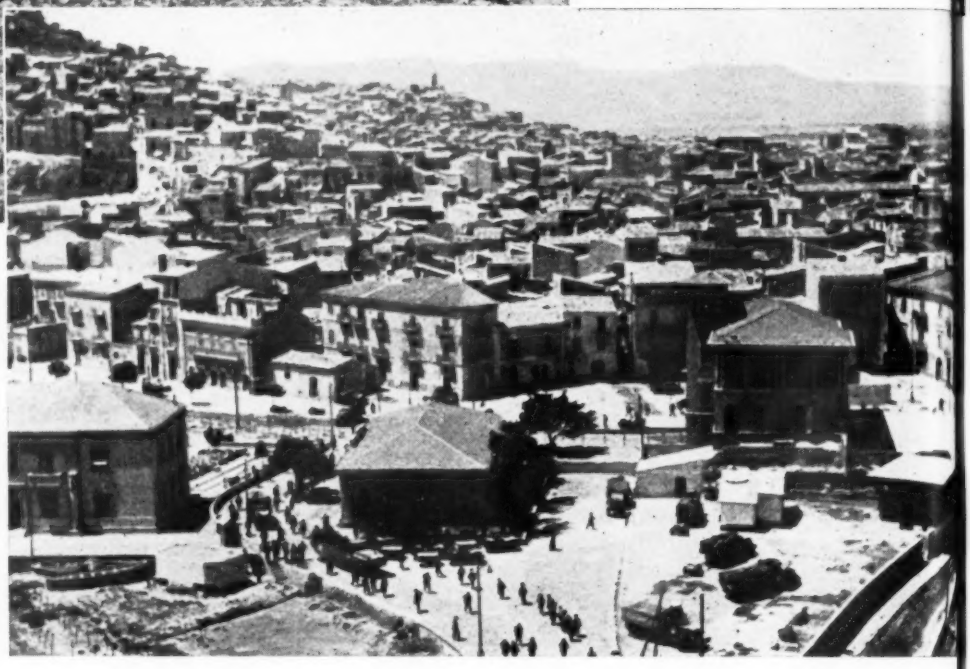
Scene on Gela Beach on "D" day—10 July. Matériel was slow to arrive, and troops were unable to proceed immediately. A strong German counterattack delayed advance.



Troops landed at Licata Beach proceeded immediately through the town. Licata is pictured from elevation in the interior.

*by Colonel Paul A. Disney, Cavalry**

THE story of the action of this Reconnaissance Battalion is one of typical cavalry action albeit the mounting of the participants was on steeds of iron instead of flesh. It should be of particular interest, therefore, to all cavalrymen.

In a period of less than two weeks, the battalion operated on separate occasions as a reconnaissance battalion for its own armored division and for a provisional corps. During this period, frequently simultaneously with these operations, smaller elements operated as attachments to separate combat commands within the armored division, and companies operated in zones of advance of infantry divisions of the provisional corps—reporting directly to those divisions as well as to the Battalion.

It is believed that the command of a reconnaissance platoon gives a young officer an opportunity to display his ability in a manner afforded by no other command of comparable size. Of seven platoon leaders in the Battalion who have had the opportunity of displaying their wares in combat, one has been recommended for the Distinguished Service Cross, and four have received the Silver Star (one of them twice). The remaining two had hard luck and got the Purple Heart while leading their platoons. Two of these awards were made during landing operations in French Morocco in November 1942.

All of the platoons which were observed in action performed as though going through platoon combat exercises and tests, which have formed a part of the training in this Battalion for a considerable period of time. The principles laid down in the training manuals are sound. "The proof of the pudding is in the eating."

The period covered by this account starts with the departure of elements of the Battalion from Africa and ends on the day that they entered Palermo.

Most elements of this Battalion spent the period 1-5 July at an African Port of Embarkation loading vehicles and making preparations for an embarkation of personnel for amphibious operations. Headquarters Company and Company "A" were to remain in Africa. Company "B" had already departed for a staging area. Company "C" was attached to a Combat Command of the 2d Armored Division. Company "D" comprised a part of the reserve of the Task Force. Battalion Headquarters, consisting of the Battalion Commander, four staff officers, a medical officer and ten enlisted personnel.

*Commander, Reconnaissance Battalion, Sicily.

# onnaissance in Sicily

## a Reconnaissance Battalion from the Landings t Licata and Gela to the Entry into Palermo

embarked with the understanding that elements of the Battalion would be assembled later for operations as a tactical unit.

### Company "B"—Licata to Naro—10-11 July

The first element of the Battalion to reach Sicily was Company "B," which landed near Licata on 10 July between 2200 and 2300 and moved directly from the dock areas to a de-waterproofing area northwest of the town. Vehicles were de-waterproofed and tires inflated. Outpost was established and maintained by the 3d Platoon until 0400, 11 July.

On the morning of 11 July Company "B" moved out in advance of a Combat Command in an attack on the town of Naro.

About one mile south of Naro the 2d Platoon, as the leading element of the company, observed an enemy tank moving east from the town. A patrol was sent after it, but it made a successful getaway. The 2d Platoon then entered Naro at 1100 without opposition. One Italian truck of ammunition was found abandoned and was turned over to Company Headquarters. Orders were received to outpost the town. On a ridge 5 miles north of Naro, enemy fire was encountered. Two Italian trucks coming from the north met with the leading ¼-ton truck of the patrol. Fire, promptly opened on the trucks, killed six of the enemy. Of the remaining, 3 Italian soldiers surrendered, and an estimated 30 or 40 more were killed or wounded. The Italians, evidently from other trucks, built up a strong firing line with machine guns and antitank guns. The 2d Platoon assault gun was brought forward and used with direct fire on the enemy positions. The enemy continued to reinforce its position from the north. After fighting for 2½ hours and being unable to get around either flank, the platoon set fire to the two Italian trucks and withdrew to a ridge just *north* of Naro, where it remained in observation of the enemy during the night and next day.

Meanwhile, the 1st Platoon, which left its position north of Licata at about 0315, proceeded north and

**The city of Palermo, capital of Sicily, fell to the Americans on 23 July 1943. Elements of this Reconnaissance Battalion entered its outskirts on 22 July. The Provisional Corps covered distance from Agrigento in 72 hours' forced marching.**

northwest by road to a point about 7 miles north of Licata. It moved over this route at a fair rate of speed and arrived at Conostra at about 1000. The city was deserted of soldiers, and the platoon, proceeding immediately to Naro, arrived there shortly after the 2d Platoon had taken the town. The 1st Platoon was then sent to establish an OP *west* of Naro, which it maintained during the night and until 0300 on 12 July.

The 3d Platoon arrived at Naro and moved north on the main highway to Canicatti. At the highway and railroad junction, midway between Naro and Canicatti, it came under fire of enemy small arms, machine guns, and two artillery pieces. The platoon was trapped in a canyon but worked its way back by fighting a rear guard action. All except one enemy gun was destroyed, without any casualties or vehicular losses within the platoon. At about 1830 the platoon was bombed and strafed on the highway just north of Naro. One man was killed, three men injured, and two vehicles were lost. At 2100 it established an OP on a hill three miles *east* of Naro and maintained it for the remainder of day.

### 3d Platoon, Company "B"—Naro-Serradifalco—12-15 July

At dawn on 12 July, the 3d Platoon, which had established an OP east of Naro, was divided into two sections. One section remained at OP, and the other patrolled and reconnoitered the Naro-Palma Di Montechiaro road for an enemy armored division reported to be in that locality. No contact with the enemy was made, but hostile planes continued to bomb and strafe,

and the platoon leader and driver were wounded by fragments from German artillery shells.

The next day the 3d Platoon proceeded north of Naro to Canicatti, which had now fallen, and established an OP four miles in advance of the infantry front lines. A patrol moved toward Serradifalco, gained contact with the enemy and found a large oil dump on fire. Artillery was firing on the enemy south of Serradifalco. That evening the 3d Platoon withdrew to an OP one-quarter mile north of Canicatti, and a patrol moved three miles west of that town and established an OP on high ground. Two German prisoners were captured at this point.

At 0600 on 14 July, one section of the 3d Platoon moved three miles west of Castrofilippo, gained contact with the 2d Platoon, and then withdrew to the original OP because of friendly artillery barrage in that sector. A patrol was then sent southeast of Racalmuto on reconnaissance.

The second section of the 3d Platoon went north toward Serradifalco to the OP of the preceding day and again gained contact with the enemy. A patrol moved to the northwest and located an evacuated German bivouac area, which had apparently been a regimental headquarters and contained much German equipment. After finding and turning in many documents, the patrol set up an OP there for the rest of the day. Six Italian prisoners in civilian clothes were captured.

The next day, this same section went cross-country north to about three miles south of Serradifalco, where the patrol was fired on from the north by a German 170mm howitzer. It moved to take cover, but the artillery lifted and followed the patrol, so the section proceeded to the position of the day before. Fifteen minutes later, enemy artillery ranged in on the exact location that the section had evacuated. It then returned to a friendly artillery OP and pointed out the location of the enemy battery, which was soon silenced. About 2100 the 3d Platoon was relieved and withdrawn to Company CP about two miles north of Campobello.

### 2d Platoon, Company "B"—Naro-Favara—12-16 July

At about 2000 12 July, the 2d Platoon, which had remained in observation of the enemy north of Naro, sent a patrol north to determine the disposition of the enemy. The two trucks, burned the day before, had been moved so as to block the road. There was no enemy fire until the patrol reconnoitered by fire, at which time the enemy, from the same position as the previous day, returned the fire vigorously. The patrol then withdrew to the ridge just north of Naro, and remained in observation until early the next afternoon. When hostile artillery fire started falling near a bridge between the position of the platoon and Naro, the platoon was ordered to return to Company CP but later was ordered back to its original position, where it remained in observation.

In the afternoon of 14 July, elements of an armored infantry regiment were contacted in Naro and all information conveyed to them.

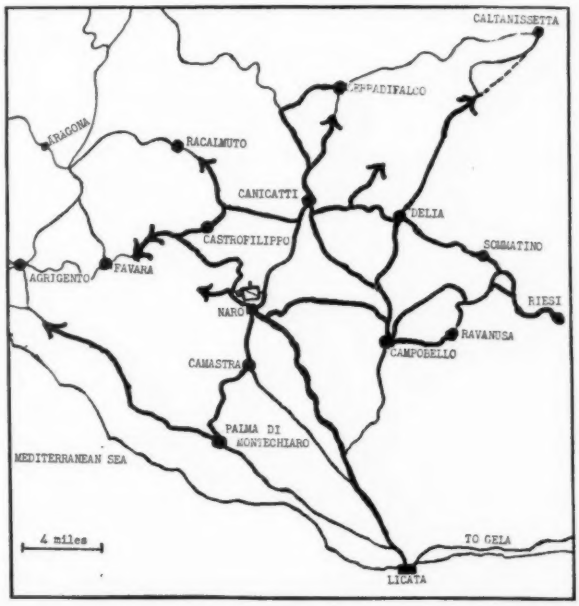
The next day a coördinated attack with the armored infantry revealed that the enemy position had been abandoned. Eight 47mm and four 20mm guns in good condition were found near Castrafilippo. The crews had evidently been destroyed by strafing.

A patrol was then sent to Favara. About one mile from Favara, two gun positions were observed and others heard. These guns opened fire on the patrol and upon a bridge 600 yards ahead on the road. The assault gun was brought forward and neutralized two of the gun positions. The remaining hostile guns were getting the range when the platoon was directed to withdraw to the original position north of Naro. Listening post and patrols were established for that night.

At about 1500 the next day, the 2d Platoon moved through Favara—the enemy having withdrawn from the town. That evening, it was relieved and returned to Campobello to join the Company Headquarters.

### 1st Platoon, Company "B"—Naro-Agrigento—12-14 July

On 12 July the 1st Platoon, Company "B," which had established an OP west of Naro, was ordered to contact the enemy north of Agrigento. The route of march was Camastra-Palma Di Montechiaro-Agrigento. The Platoon started on this mission at 0330. At 0600, the enemy was encountered about 3 miles southeast of Agrigento. The Scout Section came upon two bridges south of the town which were blown, and three enemy soldiers who were mining the banks of the




**Route of Company "B" — July 10-16. Heavy lines indicate routes of reconnaissance of this unit for dates given.**

**View of Naro, Sicily, where as early as 11 July Company "B" established OP's to the north, east and west of town.**

stream at the bridges. Fire was opened immediately. The three enemy were killed, and a truck loaded with mines standing in the road on the opposite side of the stream was destroyed. As fire was opened, the hostile artillery along the high ground beyond the creek, (about 1000 yards to the direct front), and 4 machine guns to the right front, opened fire. A vigorous fire fight ensued, during which the platoon was forced to withdraw.

Losses sustained were one officer and five enlisted men missing, one enlisted man killed and one assault gun destroyed. Enemy losses were three enlisted men killed, one truck and two machine guns destroyed and a pile of ammunition blown up. The platoon remained in observation of the enemy until the afternoon of the 14th, when it was ordered back to Naro.

### 1st Platoon, Company "B"—Naro-Delia-Caltanissetta—14-16 July

At about 1700 the 1st Platoon was given the mission of reconnoitering the road east from Naro to Ravanusa-Riesi-Sommatino-Delia, then north to contact the enemy in that sector. The platoon moved out about 1730 and patrolled the assigned route, but made no enemy contact that day. The night of 14-15 July an OP was set up on high ground about one mile northeast of Delia and patrols operated east to Sommatino-Riesi.

At about 0600 the 1st Platoon was reinforced by the Scout Car Section of the 2d Platoon, which was sent northeast with the mission of contacting the enemy south of Canicatti.

The 1st Platoon, moving northeast toward Caltanissetta, was shelled by artillery and forced to withdraw but continued to maintain contact. It next moved about 4 miles northeast and encountered an 88mm gun and two enemy tanks. One vehicle was destroyed and one man in the platoon wounded. The enemy tanks started an envelopment of the right flank of the platoon, which withdrew to the high ground occupied the previous night. The enemy tanks were kept in observation the rest of the 15th.

At about 0530 the next day the 1st Platoon again moved forward and occupied high ground on its axis. An Italian truck was destroyed about 2000 yards north of the position. That afternoon the platoon was joined by an I & R platoon of an armored infantry regiment and at about 1400 noted dismounted enemy moving south through a draw toward the positions held by the platoon. Remaining in observation until fired on by a machine gun, it then returned the fire, in conjunction with the armored infantry, inflicted several casualties, and caused the enemy to withdraw in disorder. That night the 1st Platoon was relieved and returned to bivouac north of Campobello.

### Company "C"—Gela Beach—10-12 July

The majority of Company "C" landed at Gela late in the afternoon of 10 July and early morning of the

**Infantrymen of the 45th Division march through Caltanissetta, Sicily, 18 July. Reconnaissance elements attempting to enter the town earlier were stopped by heavy fire and established OP's three miles south of the town.**

11th. The 1st and 2d Platoons plus Headquarters Company, were landed without sufficient vehicles to operate mounted.

During the landing, the 3d Platoon, reinforced by other personnel of Company "C", was subjected to severe bombing, strafing and enemy artillery fire but succeeded in shooting down one low-flying plane. This platoon, which received its vehicles soon after landing, was immediately given reconnaissance missions of locating enemy vehicles reported in the vicinity of the Acate River to the south and east of Gela, and there made several enemy contacts. Enemy tanks were kept under observation to the north. The terrain was difficult and most of the reconnaissance along Highway 115 to the north had to be done dismounted.

The rest of Company "C" remained in assembly area near Gela beach awaiting the arrival of vehicles from ships.

Five German tanks were reported in the vicinity of Gela, and it became necessary for the 1st Platoon (less the Scout Section which had made contact with Combat Command about one mile north of the beach) to withdraw in face of tank action. The 1st Platoon took up a dismounted defensive position in a railroad cut about ¾ of a mile from the scene of action. There it was shelled by enemy artillery and dive bombed until forced to withdraw to the original assembly area.

The 2d Platoon, which had landed at 0530 on 11 July remained in the assembly area the rest of that day and all of the 12th waiting for vehicles to arrive. During this period, German tanks attacked from the hills, and the units underwent considerable strafing as well as tank and artillery fire.

On the afternoon of 12 July, Company "C" less the 3d Platoon, reverted to Battalion control and moved to assembly area about 4 miles northwest of Gela.

### 3d Platoon, Company "C"—Gela—12-17 July

On 13 July the 3d Platoon patrolled Highway 115 to Vittoria, and from Vittoria half-way to Comiso. The airport southwest of Comiso was being shelled by the enemy at that time.

During the night the platoon outposted the high ground north of Highway 115 to the Acate River. An overlay of certain trails to the north was given the platoon leader by the Combat Command and the seven points designated thereon were visited at least once every two hours. About 0100 the platoon leader took 12 men and with a small element of the infantry went up the mountain to the north to neutralize a gun position which they thought had been located. The gun was not found, and the patrol returned at dawn.

While continuing patrols the following day, the platoon captured one German prisoner and 6 Italian prisoners and on the 15th another Italian prisoner. Patrols and observation points remained approximately the same throughout this period.

Barrafranca was captured by an infantry regiment on the 16th, and the following day the 3d Platoon rejoined Company "C".

### Company "C"—Riesi-Mazzarino Area—13-17 July

From the assembly area 4 miles north of Gela the 1st Platoon, Company "C" moved out toward Butera on 13 July with the mission of covering the flanks of a Ranger Battalion in its attack on enemy positions in that vicinity. The next day Company "C", less 3d Platoon, moved into assembly area about two miles south of Butera. The town of Mazzarino on the Ranger Battalion's right and Riesi on its left had already fallen. It was reported that enemy troops were between the two towns.

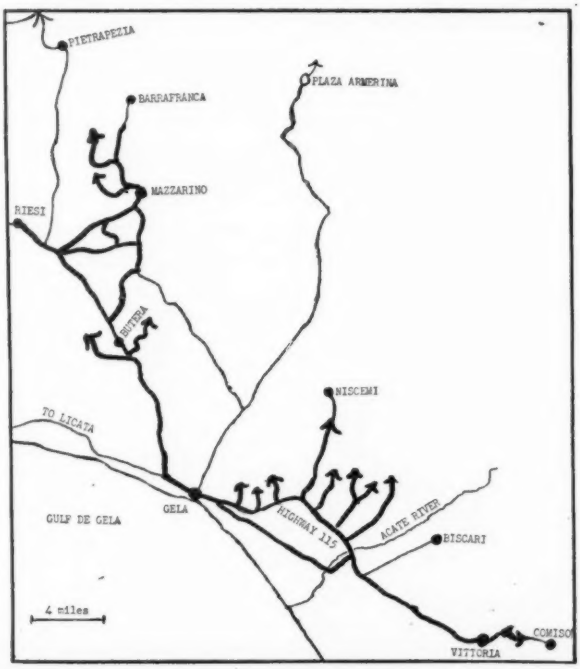
The Scout Car Section of the 1st Platoon moved out of advance position at dawn and by 1000 arrived on a high hill overlooking Butera. Its missions were to patrol the right flank of the Ranger Battalion to east and west phase line through Butera, and then to contact the Division east of Butera. By moving cross-country for about three miles the Scout cars reached an infantry outpost 6 miles east of Butera and left an OP to investigate the hills to the north of Butera. After finding a deserted Italian garrison filled with ammunition and grenades, the 1st Platoon was ordered back to CP. Later, while patrolling in the Riesi-Mazzarino area, it contacted an Infantry Division CP in Riesi at 2000, and maintaining contact with the Division, patrolled to Mazzarino. The patrol then returned to bivouac area after midnight and patrolled the Mazzarino-Riesi road between two Divisions CP's for the remainder of night.

The next day, the 1st Platoon was ordered to contact an infantry regiment at Mazzarino and patrol with scout section as far as Barrafranca. As the platoon arrived, a tank battle was in progress in the valley just north of Mazzarino, and the commanding officer of the infantry regiment said that it was impossible to make a daylight patrol and requested the scout section to make a dismounted night patrol of the road to Barrafranca. The scout section leader with eight men performed this mission. The patrol was recalled at 2100.

On the 16th the 1st Platoon returned to Mazzarino and was assigned the mission of reconnoitering the road to Barrafranca in an effort to locate an alternate route for supplies moving north to an infantry regiment in the hills.

The Scout Car Section moved out on its new mission at 1200 and by 2100 had located a cross-country route to the area northwest of Barrafranca.

Early the next morning the 1st Platoon moved out




**Route of Company "C"—July 10-17.**

to make contact with the enemy north of Barrafranca. Before contact was made, however, it was ordered to rejoin Company "C" south of Butera.

By the 17th, all platoons had rejoined the Company, which in turn reverted to Battalion control and moved to the new assembly area near Campobello.

### Company "D"—Gela-Agrigento—11-18 July

Company "D" landed from lighters at Gela beginning at 0500 on 11 July, and assembled behind the sand dunes just off the beach. Dismounted elements of the company which landed earlier from the transport were on the beach for a full night and a day before vehicles were received. During this time they were subjected to constant bombardment and aerial attack, and a German tank attack.

The tanks of Company "D", and personnel vehicles of Battalion Headquarters were brought ashore on 11 July, and the Battalion (less detachments) assembled in the vicinity of Division Headquarters.

On 12 July, Company "D" (light tanks) moved approximately 6 miles north of Gela on the Butera Highway, and spent the 13th and 14th as a reserve in close support of the Ranger Battalion and its attack on Butera.

One tank platoon was made available to the 2d Armored Division Commander and remained at Division Headquarters.

Again on 16 July Company "D", still in reserve, went to the assistance of an infantry division sustaining a German tank attack. The company moved in 5 minutes, but upon arrival found that the attack had been beaten off.

On the 17th the Company rejoined the Battalion at Campobello, and the following day moved out under Battalion control to an assembly area west of Agrigento. It remained in reserve throughout this period, and none of its elements were committed.

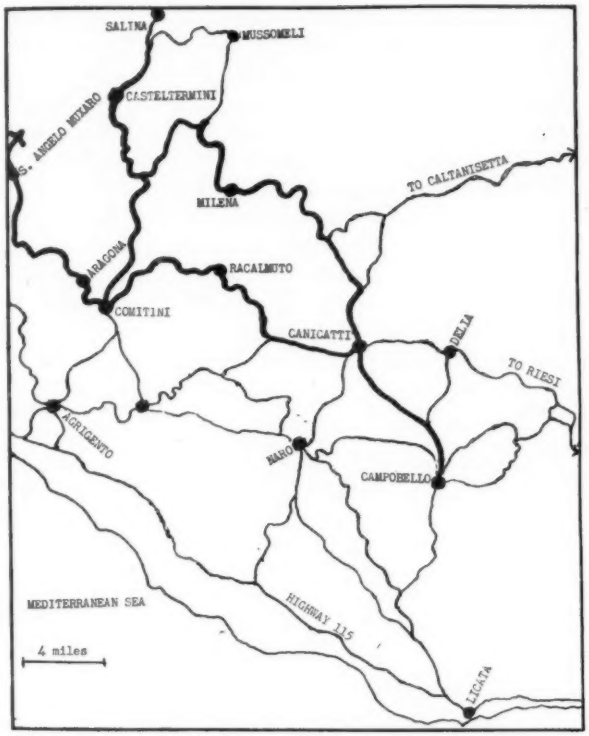
### Company "B"—Campobello-Comitini—15-18 July

On the 17th, the 3d Platoon, Company "B", which had rejoined the company at Campobello on the 15th, proceeded north to Canicatti and pushed reconnaissance two miles northwest of Milena. Contact was gained with enemy artillery there and an OP and listening post established for the night. Enemy infantry and artillery were located two miles west of this position.

At dawn the next morning a dismounted patrol was sent to reconnoiter a large sulphur mine and railhead on Salina Road, 6 miles north of Casteltermini. The enemy was seen withdrawing to the north at 1000.

The Platoon was called back to the Company CP at noon to revert to Battalion control. The Platoon joined Battalion west of Agrigento at 2300.

On the 17th the 1st Platoon, Company "B", attached to a battalion of an armored regiment, was assigned the mission of reconnoitering routes to Racalmuto and Comitini and of contacting an enemy column reported moving south from Casteltermini. The armored regiment was later recalled and the 1st and 2d Platoons then proceeded on missions of contacting the enemy north of Comitini.




**Route of Company "B"—July 15-18.**

At about midnight, Comitini was found to be clear. Five miles north of Comitini the 2d Platoon was fired upon by riflemen who ran off when fire was returned. At about 1500, the 1st Platoon made contact with an enemy artillery position. Three artillery pieces, one 20mm AA gun, one 47mm gun and two machine guns were definitely located. The two platoons shelled this position and at about 2000 started an attack which resulted in the destruction of these weapons and the capturing of 10 prisoners.

As the platoons returned from this sortie, another artillery piece and two machine guns opened fire, but their exact location could not be determined. Neither platoon suffered any casualties. It was determined earlier by the 2d Platoon that the bridges across the river were blown, but the railroad bridge was still intact. The night of 17 July, listening posts were established.

Observation of enemy gun positions was maintained throughout the next day, and the remaining piece located. Meanwhile, the two platoons proceeded to Aragona without resistance, and patrols reconnoitered northwest to S. Angelo Muxaro and north for about three miles. During the night several prisoners walking from Agrigento were captured.

A patrol during the afternoon went 10 miles north

of Comitini where heavy artillery fire was encountered, causing the patrol to withdraw and set up an OP. In the early evening a dismounted raid was made on the enemy position with the Scout Section of the 1st Platoon. Nine prisoners were taken. The Platoon then returned to the Company CP at Campobello and moved with the Battalion to Agrigento.

### Campobello—Agrigento—17-18 July

During the period 10-17 July Company "B" had operated under Combat Command. On 18 July the Battalion was detached from the 2d Armored Division to act as a Reconnaissance Battalion for a Provisional Corps comprised of the 3d Infantry Division, 82d Airborne Division and the 2d Armored Division. For the first time Company "B" reverted to Battalion control for this operation. In accordance with these plans, the Battalion moved to assembly area west of Agrigento during the night of 18 July.

### Company "C"—Agrigento-Ribera—19-20 July

All platoons of Company "C" moved out of Agrigento at 0200 on the morning of the 19th. The 3d Platoon, performing reconnaissance for the 82d Airborne Division, moved west on Highway 118, on the axis of advance Raffadali-Cattolica-Montallegro. The first enemy encountered was at the Magazzolo River and after some firing, 55 prisoners were taken.

At Ribera, after a mine field had been removed and the town placed under fire, the city surrendered and some 70 prisoners were taken.

At the Verdura River, two miles west of Ribera, the 3d Platoon encountered small arms fire and artillery. The position was reduced by fire and dismounted action, and 85 prisoners were taken.

At a second river crossing west of Ribera, stiff resistance was met in the form of small arms fire, antitank guns and artillery. Both ends of the bridge were hit by antitank fire when a scout car attempted to cross. Ninety prisoners were taken. One man was wounded by strafing of enemy planes.

Meanwhile, the 1st Platoon, which had also moved out of Agrigento in advance of the 82d Airborne Division, made contact with Battalion of Rangers at 0430 three miles east of Raffadali. Following the 3d Platoon, the 1st Platoon then moved rapidly to Cattolica where it received a hearty welcome from the population. It then continued its advance toward Ribera. At the approaches to the town, hostile small-arms fire was encountered, but was quickly overcome by the vigorous return fire of the platoon. Patrols, after passing through a mine field, entered Ribera at about 1200. The local garrison of approximately 75 men surrendered to the platoon leader. Shortly thereafter infantry entered Ribera, and the platoon assembled and went to assembly area north of the town. The Scout Section patrolled roads to the north but encountered no enemy resistance.

The 2d Platoon moved northeast of Ribera to an in-

***Right:*** **Near Agrigento where the battalion assembled for assignment with the Provisional Corps, composed of 2d Armored Division, 3d Infantry Division and 82d Airborne.** ***Below:*** **Major General Geoffrey Keyes, commander Provisional Corps, and Major General Matthew Ridgeway (center), commander 82d Airborne.**

**Route of Company "C"—July 19-20.**

fantry outpost line. The Company CP moved to Ribera and joined the CP of the 82d Airborne Division.

The following day the 3d Platoon continued reconnaissance in advance of the Airborne Division moving west on Highway 115; the 2d Platoon moved north of Highway 115; while the 1st Platoon remained in company reserve.

### 1st Platoon, Company "C"—Ribera-Caltabellotta-S. Ninfa—20-21 July

The 1st Platoon, proceeding slowly because of the presence of mines, moved from Ribera to Villafranca at 0500 on the 20th. Just south of Villafranca, the platoon was directed to patrol a side road to the mountain town of Lucca, which capitulated without resistance at 0800.

The platoon then pushed on to Villafranca. An enemy armored car was sighted on a hill near the town. Fire was opened with a 37mm gun, but it was found that the range was too great. After passing Burgio, reconnaissance was made toward Caltabellotta. An Italian machine gun just over the crest of a hill near Caltabellotta was next discovered. Mortar fire from the platoon silenced these guns. A white flag was shown and the Scout Section went forward to take the position. Eight AA machine guns and several prisoners were captured. The platoon then proceeded on its mission to Caltabellotta.

The Platoon entered the town at 1800 after a white flag had been raised and the garrison of 25 men was taken prisoner. Prisoners, reporting the road west of the town as mined, were marched out to clear the mine field. Mines were found to be TNT placed under the road and in deep pits sufficient to cause complete destruction of the road. Italians very reluctantly cleared the tunnel under the road, but they claimed they could not clear pits without pulleys.

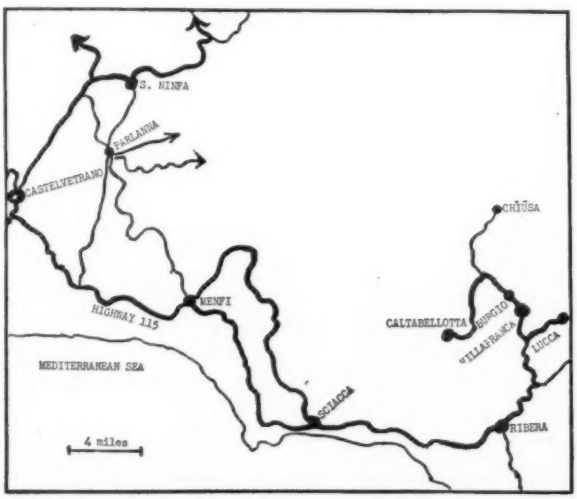
Naval gunfire was observed in the zone of advance, and a smoke flare was sent up. Orders were then received to remain in position. The platoon was approached by the Mayor and Chief of Police of Caltabellotta who stated that rioting threatened the town as the civilians were attempting to storm the local monastery to get clothing and equipment known to be stored there. Order was restored, and the local police force rearmed to maintain order.

The next day the 1st Platoon rejoined Company "C" at Menfi and was held in reserve as the company pushed on through Castelvetrano to S. Ninfa, which was reached at 1800. The Scout Section reconnoitered the high ground north of the town without locating any enemy forces. Outposts were then established for the night.

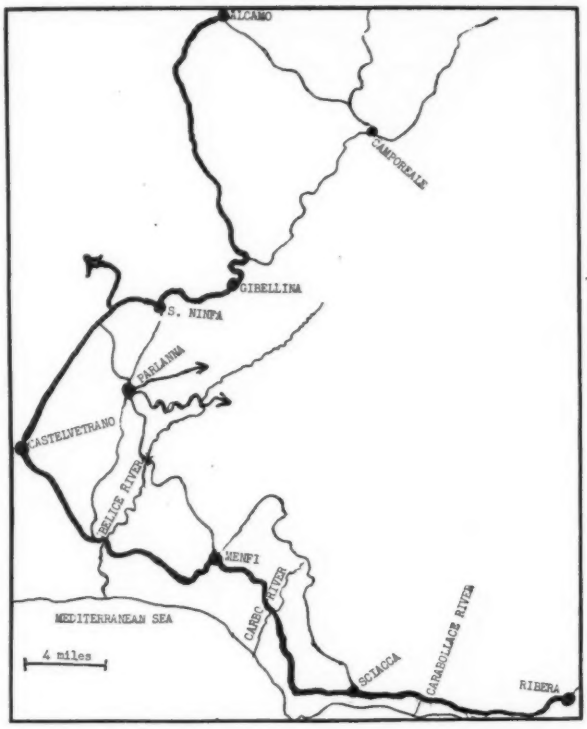
### 3d Platoon, Company "C"—Ribera-Menfi-Alcamo—20-21 July

At 0530 on the 20th, the 3d Platoon moved out of Ribera toward the west. Artillery fire was met about 5 miles from Sciacca. Dismounted, the platoon took the gun position and 80 prisoners. About three miles farther west, it was fired on again by artillery but pushed on after returning fire with an assault gun.

After some delay because of a blown bridge and the necessity of stopping for ammunition and gasoline, the platoon entered Sciacca, then proceeded toward Menfi. The head of the column drew very heavy small-arms fire at close range from the flanks and rear. No casualties were suffered because of the prompt delivery of supporting fire by the remainder of the platoon. Casu-




**Route of 1st Platoon, Company "C"—July 20-21.**




**Route of 3d Platoon, Company "C"—July 20-21.**

alties were inflicted on the enemy by all weapons including hand grenades.

Four miles east of Menfi the river bridge was mined and defended. The position was reduced by the fire of all weapons and dismounted action. Several casualties were inflicted and 110 prisoners taken. Two prisoners were killed in the mine field which was booby-trapped.

Another mine field was located one mile east of Menfi, and while it was being removed, a small dismounted patrol entered Menfi without resistance. At least 500 prisoners were rounded up in the city square.

At a small river two miles west of Menfi a large mine field was encountered. The Engineer squad which was sent up to remove the mines hit a booby-trap which killed two men including an officer, and wounded 9 others.

One platoon of Company "D" joined the 3d Platoon just prior its entry into Menfi.

The 3d Platoon bivouacked at Menfi for the night and, moving out early the next morning, reached the Belice River at 0555. The bridge was blown, and the enemy infantry closed on the platoon before it could be by-passed. Hostile artillery fire went on intermittently for two hours but was ineffective.

The Scout Section and Tank Platoon were able to cross after considerable delay. A mine field was removed on the way to Castelvetrano, which was entered without a fight. Approximately 500 prisoners were rounded up and sent to the rear. The remainder of the day's advance was through to S. Ninfa, Gibellina, and Alcamo. No resistance was encountered. Eight 75mm and three 100mm guns were destroyed by the enemy as the 3d Platoon entered Alcamo. Approximately 800 prisoners were taken in these three cities. Actually, this was a small percentage of the enemy troops present; the remainder were taken over by succeeding elements.

The 3d Platoon halted for gas at Alcamo and was ordered to return to Company CP at S. Ninfa. Inadvertently, it had crossed the "bomb line."

### Company "B"—Agrigento-Palermo—19-22 July

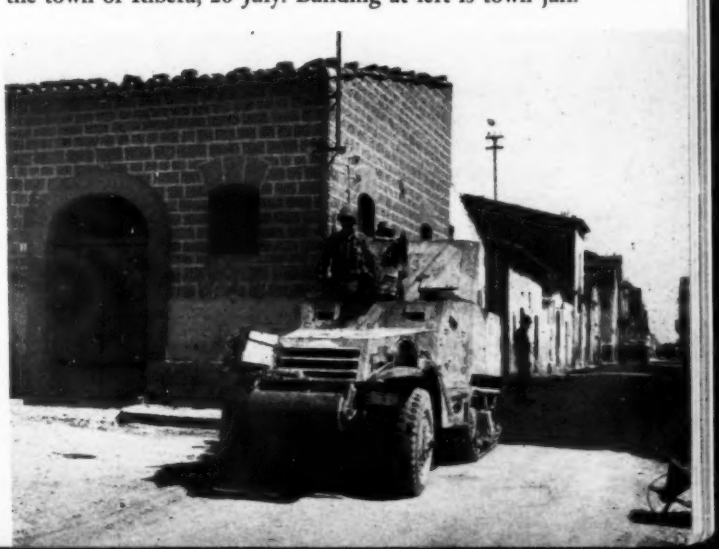
Early on the morning of 19 July, Company "B" moved out of Agrigento in advance of the 3d Infantry Division on Palermo.

At 0300 the 1st Platoon moved back to a position north of Comitini, where, at about 1000 an armored infantry regiment attacked the enemy, and the platoon immediately forded the river and proceeded to Casteltermini. As the Platoon left the town it destroyed an Italian truck, killed one enemy soldier and wounded another. The 1st Platoon remained in the vicinity until ordered to return to company CP at Aragona where it arrived at about 2400.

The 2d Platoon as sent north to the Platani River, where its advance was held up until midnight because of a blown road.

The 3d Platoon, moving out at 0830 as advance guard for Battalion, passed the infantry front lines, joined French-Arabian Forces at Mussomeli, and set up an OP and listening post one mile west of the town. The next day, it proceeded west toward Casteltermini, then north toward Lercara—both infantry objectives. The platoon was divided into two sections—one going toward Lercara, and the other west toward Cammarata. The latter section captured 208 Italian prisoners in barracks and destroyed their arms. These men were members of a motorized cavalry unit. The other section was first to arrive in Lercara. Friendly artillery continued fire on a point one mile south of the town, but civilians cheered and greeted the patrol as it entered.

**Elements of the reconnaissance battalion move through the town of Ribera, 20 July. Building at left is town jail.**



**Route of Company "B"—July 19-22.**

The 3d Platoon was reassembled at 1800 and proceeded to S. Stefano to join the 2d Platoon, which had moved there through Bivona. The 2d Platoon had encountered no resistance until two miles from S. Stefano where the enemy was found camouflaging a position around the railroad station. In coördination with a Reconnaissance Troop it took the position and captured 30 prisoners in addition to about 30 more dead or wounded. About 200 more prisoners were taken by the infantry.

A long column of vehicles, including some tanks, was seen moving north out of S. Stefano. This column halted and personnel dispersed when brought under 37mm fire from the scout cars. The vehicles and personnel captured in this action included about 500 prisoners, 7 light tanks, 25 trucks, 5 command cars, six 75mm guns, 1 tractor and 2 motorcycles. The 3d Platoon left S. Stefano at 2000 for the Company CP at Comotini, while the 2d Platoon set up a CP and remained there for the night.

The next morning a patrol moving 6 miles north of S. Stefano discovered four 88mm and four 75mm guns. The 2d Platoon then moved into Prizzi without further resistance, thence to Corleone where 300 prisoners were taken, and remained there patrolling roads and outposting the town through the night of the 21st, and until the Company CP was moved there on the 22d.

On the 20th, the 1st Platoon relieved the 3d Platoon and proceeded to Lercara, where contact was made with the enemy on high ground to the north at 1700. After shelling, then attacking, the platoon took the position and captured one artillery piece, three 20mm guns, one machine gun and 200 prisoners. At 2045 the enemy drove the platoon out with shell fire but failed to occupy the position and the platoon moved in again at about 2200. An armored infantry moved through the position that night and bivouacked about 2 miles from Lercara, and the 1st Platoon established a listening post in advance of the infantry until morning, when it moved on Lercara, seized the town at 0630 and rounded up 600 prisoners. The 1st Platoon, after being relieved by the infantry that entered the town at 0900, proceeded north to where a mine field and a large gas dump were discovered. Twelve prisoners were captured and one soldier killed. After moving to Prizzi and Corleone, it proceeded north and captured 14 Germans and 6 Italians. Friendly infantry moved through the position during the night, and the next morning the 1st Platoon moved out through the infantry and occupied the town of Marineo at 0800. Continuing on to Bolognetta, it captured a railroad train and 30 prisoners. Again it proceeded and captured 5 more prisoners and 3 trucks, then pushed on into Misilmeri at about 1130.

Meanwhile, the 3d Platoon proceeded toward Corleone to join the 1st Platoon in the drive north to Palermo. At a rail head midway between Corleone and Marineo 50 Italian prisoners were taken from box cars. The 3d Platoon proceeded north to Marineo, and found that the enemy was fleeing to north. A dismounted patrol was sent to a bridge on the main highway which had been prepared for demolition. Five hundred yards north of the bridge a large booby-trapped ammunition dump was found. After marking this, the Platoon proceeded into Marineo, where it received a warm reception from civilians.

The 1st and 3d Platoons, proceeding north from Misilmevi, encountered an enemy artillery position consisting of an 88mm and one 75mm gun in position. About 1200 a friendly artillery battery came up and shelled the position, after which the 1st and 3d Pla-

toons advanced, took the gun positions and pushed on to Villabate, where about 1200 enemy troops (Italians and Germans) surrendered. A guard was placed on the prisoners, and the 1st Platoon outposted the town until relieved by infantry. A patrol was then sent east to S. Flavia. En route, about one regiment was captured, marched to Villabate, and later taken to Ficarazzi. The 1st Platoon bivouacked at S. Flavia that night with no further contact.

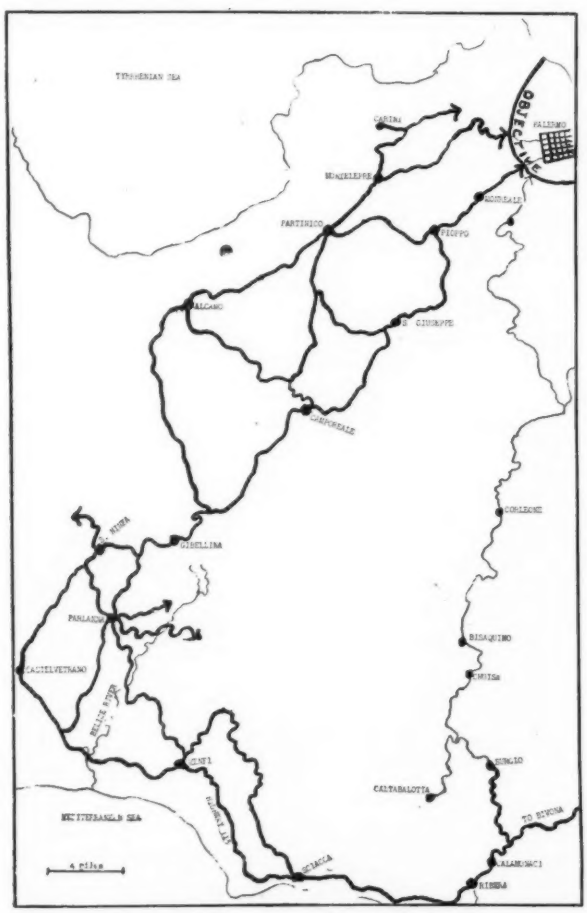
The 3d Platoon proceeded into the outskirts of Palermo, seized and destroyed an arsenal there, and took about 600 more prisoners, who were taken to the prisoner of war area at Villabate. The Platoon withdrew from Palermo when Allied naval guns shelled the city.

### Company "C"—S. Ninfa-Palermo—21-22 July

On the 21st, Company "C" was released from operating with the 82d Airborne Division and moved out on Highway 115 through Sciacca and Menfi.

The 2d Platoon, which had moved on Bivona, then back to a road junction northeast of Calamonaci and thence to Burgio, had returned to Company CP at 1900 on the evening of the 20th.

It now received orders to proceed at 0330 to the restraining line on Fiume Belice southeast of Castelvetrano; to reach and cross this line at 0430. A bridge over Fiume Belice was found to be destroyed. The attached squad of armored engineers and the 2d and 3d Platoons constructed a tank crossing and, with one tank, pulled three ¼-ton trucks across the river. Vehicles of both platoons were forced to wait for gas trucks. Four tanks of the attached tank platoon of Company "D", two ¼-ton trucks of the 3d Platoon, one ¼-ton truck of the 2d Platoon, and the vehicles of the 1st Platoon moved into Castelvetrano.




**Route of Company "C"—July 21-22.**

The 2d Platoon ¼-ton truck returned to the bridgehead—leading a convoy of two captured colonels and 8 other officers, plus 27 enlisted men (Italians). The prisoners were turned over to Company Headquarters. The 2d Platoon then established an OP one mile south of Parlanna and sent out patrols at about 1530. The Tank Platoon (attached to the 2d Platoon) moved to a point just north of Parlanna, where it captured one major general, one lieutenant colonel, one major, four captains, four 1st lieutenants, two second lieutenants and 20 other officers (rank not known) and 60 enlisted men (all Italians).

On 22 July the 3d Platoon was dispatched from Company CP to a point one mile east of Alcamo to commence reconnaissance at 0530. It captured one German officer and 8 enlisted men in Alcamo and was forced to shoot one of the Germans when he attempted to escape.

Two large bridges had been blown between Alcamo and Partinico. These were by-passed with the aid of demolitions and the tank platoon. A guard was placed on a large gasoline dump between the two cities. About 20 prisoners were taken at the second bridge, and at least 500 prisoners were assembled at Partinico.

About three miles east of Montelepre, the mountain was blown down over the road, which made it necessary to cross the mountain into Carini and continue up the coastal road. After taking about 600 prisoners in Carini, it was a squad detached to maintain law and order and prevent the destruction of property. The 3d Platoon halted for the night three miles east of Carini in compliance with orders not to enter the city of Palermo until directed.

Meanwhile, Company "C" (less 3d Platoon) moved out of S. Ninfa as the leading element of the Battalion, in the advance on Palermo. With the 1st Platoon in the lead, it followed the route Gibellina-Camporeale, and arrived at S. Giuseppe at approximately 1000 without encountering enemy resistance. At S. Giuseppe several Italian soldiers surrendered and volunteered information that the road north of the town was mined and defended by artillery and machine guns.

In the narrow pass approximately 3 miles north of S. Giuseppe the Scout Section surprised a group of Italian soldiers laying mines in the road. Following machine-gun fire from the Scout Section the Italians surrendered. Before the prisoners could be taken a 75mm

**A forward reconnaissance unit of the Provisional Corps is greeted by civilians in a village on the outskirts of Palermo.**

gun from a well camouflaged position in the pass fired upon the leading scout car which was hit and destroyed on the second shot. The Scout Section left vehicles under cover and moved forward dismounted, while the platoon leader moved to high ground on the right of the road in an attempt to spot the hostile gun position. The Scout Section brought retreating Italian soldiers under small-arms fire. The hostile 75mm gun continued to fire on elements of the 1st Platoon until its gun crew was killed by fire from the assault gun of the 2d Platoon. This gun had been moved into position several hundred yards to the south.

As soon as the hostile artillery piece had been destroyed, the company executive officer, the platoon leader of the 2d Platoon, and the scout section leader of the 1st Platoon moved forward with dismounted scouts for a distance of one-half mile up the pass where they were warned by prisoners of the presence of an 88mm gun. The scout section leader climbed to an observation point on the high ground by the road but was unable to locate the gun position.

A radio operator of the 1st Platoon pushed forward in an attempt to point out the gun position to members of a mortar crew that had come up, but as he pointed out the gun, it turned its fire on him, and the second shot made a direct hit and killed him instantly.

The 2d Platoon, in conjunction with elements of the Reconnaissance Company of an armored regiment immediately returned fire, and two separate enemy gun positions were neutralized in this vicinity by the assault guns.

The 2d Platoon then replaced the 1st Platoon as advance guard, and Company "C" resumed its advance on Palermo. After an advance of approximately two miles the company again encountered heavy antitank fire, which was overcome by the quick action of the company executive officer who organized an assault gun crew and placed fire on the gun positions.

Two assault guns of Company "C" were grouped with three guns of the Reconnaissance Company of the armored regiment to cover the advance of the column on Monreale.

While these assault guns were being organized to cover the movement of the attached light tank platoon, a medium tank platoon of the armored regiment passed through the position and was followed into Monreale, in the outskirts of Palermo. The objective was reached about 1900.

A German 1st lieutenant (acting as forward observer for the 100mm howitzers on the high ground north of Pioppo) was captured near the gun position. Some enemy infantry were encountered when the advance was resumed but were quickly overcome when tanks of Company "D" were placed in front of the advance guard. Company "C", the leading element of the Reconnaissance Battalion, moved into Monreale, its objective, and bivouacked for the night.

## Conclusions

Experience of this Reconnaissance Battalion in Sicily demonstrated the specific need of attention to the following training:

*a.* Study the training manuals and lessons learned in theaters of actual combat.

*b.* Sand-table and practice on the ground the following exercises until the platoon is as well drilled in them as a top-notch football team is drilled in its plays.

(1) Reduction of defended road blocks.
(2) Meeting engagement with hostile tanks and armored vehicles.
(3) Meeting engagement with hostile infantry in position.
(4) Passage of defiles (all types).
(5) Crossing open terrain.
(6) Delaying action.
(7) Defense of a position.
(8) Establishing observation posts.
(9) Dismounted night reconnaissance by small "teams."
(10) Removal of mines, and gapping and marking mine fields.

Thorough knowledge of, and training in the above exercises, will enable the reconnaissance platoon to perform most of the multitude of missions that may be assigned to it. The need for excellence in marksmanship with all weapons, communications training, and all phases of scouting and patrolling is obvious.

# German Antipersonnel Weapons

Signal Corps Photo

This pressure type German S. mine is familiarly known to American soldiers as the "Bouncing Betty" because of its ability to "jump" some distance above its emplacement before exploding. Note three-pronged detonator, also knife.

On the Anzio beachhead, a British soldier examines the interior of a German "butterfly" bomb case. After falling a predetermined distance the case is shot open, and a number of small, delayed-action bombs fall among personnel in bivouac areas. These smaller bombs often lie a day or more before exploding.

Wide World

Press Association

This wooden box mine, which has recently appeared on the Italian front, defies detection devices. When the twig, used to hold the lid open, is broken by pressure the lid snaps shut, setting off a spring that operates the detonator and explodes the dynamite.

German caption accompanying this photo, received from a neutral source, says that it shows German troops carrying wooden boxed land mines to the Anzio beachhead sector. Detonator is set off by pressure from above, in some cases not until the ground has been traversed for days and has become well packed.

Press Association

# Mechanics of Battlefield Reconnaissance

*by Lieutenant Colonel Charles J. Hoy**

AN analysis of how a reconnaissance unit functions in battle must cover the phases of reconnaissance from the approach march, to initial contact, to pursuit.

Unfortunately, the uninitiated are quite often prone to picture the meeting engagement as one where two armies are poised opposite each other waiting for the go signal to race for the Kansas-Oklahoma border. This type of action is most unusual and rarely seen on the battlefield.

The normal situations for the meeting engagement are: first, where the enemy has managed to withdraw to a new defensive line so that contact must be regained; or second, where additional troops, arrived in the combat zone, must be moved into the line to reinforce the troops already in contact. This latter situation will generally call for a relocation of all troops in the particular area.

As the meeting engagement in which contact must be gained also covers the situation of relocating troops, a discussion of the former will suffice to illustrate the mechanics involved in either.

### Prior to Combat

When the reconnaissance unit moves toward the enemy to gain contact, it should know in general where to expect this contact. Unless the unit knows this, the reconnaissance is liable to move too slowly over the entire route. In this stage, time is all-important. Knowledge of anticipated enemy contact can be gained from several sources. The main and most reliable source will be the G-2. A thorough map study of terrain is essential. The enemy will withdraw to a position that is easy to defend and hard to attack.

Enemy mine fields, enemy air attacks, and enemy long range artillery fire, in that order, are the three big concerns of the reconnaissance unit as it closes with the enemy.

### Mines

Mines are laid primarily to cause delay, and the mine fields become denser the closer the enemy position. Reconnaissance units must not creep along behind a mine detector in this phase, for if they do, they are permitting the enemy to accomplish his mission of delay. Reconnaissance units must take chances. The enemy can not lay the mines everywhere, so he lays them in bottlenecks. True he will scatter a few promiscuously to try to cause over-apprehension, but the reconnaissance soldier must realize that the time lost by slow reconnaissance is well spent by the enemy in preparing his defenses—and that means more mine fields.

After many weeks of working through Rommel's mine fields after Kasserine, some of the men and officers of the 81st Reconnaissance Battalion developed an almost psychic power in divining the location of mines. Of course, some would miss in their guesses and discover the mine field by the explosion, but the scout car with sand bags protected the crew somewhat. The 81st had many scout cars to hit mines, and sometimes the crews were severely injured, but none fatally. The bantams were not so fortunate, however. Lt. Granger, of C Company, named his third scout car replacement "Mine Detector No. 3."

Assuming that the advance of the reconnaissance unit is stopped by a mine field, then regardless of whether the mine field was discovered by sound, observation, or by a hunch, the following procedure is suggested: Try to find a path around it, but do not waste too much time doing this.

When the 81st pursued the enemy east from Kariouan to Sousse, in April 1943, the main highway, an excellent paved road, was found cratered at a point where the road crossed a swamp. Turning south in search of virgin ground, the unit moved parallel to the edge of the swamp, continued on for about 400 yards along a poppy field, and came to a portion that appeared untouched for some time by men or vehicles. Cutting east again, then north back to the road, it by-passed that large mine field in less than fifteen minutes.

Sometimes reconnaissance units were not that lucky. When no by-pass was possible, it was necessary to dismount, use the mine detector or bayonets, clear and mark the by-pass, and then continue on. This had to be done quickly, and reconnaissance soldiers must be trained to do it automatically.

The mine fields discussed here were those laid along the route of advance to cause delay. Before the enemy withdrew, his troops and supply installations were using that same terrain. His greatest obstacle in laying those mines, before he withdrew to his new position, was time. Many of the mines had to be laid after he had moved the bulk of his forces to the rear. It is obvious, therefore, how important it is for the reconnaissance unit to move boldly and not permit the

*Instructor, The Cavalry School. Formerly Commander, 81st Reconnaissance Battalion, Tunisia.

enemy the advantage of that time. All soldiers in a reconnaissance unit must be past-masters at mine removal.

### Air Attacks

Although not as effective as the mine field, enemy air attacks present additional problems for the reconnaissance unit. Concealment, dispersion, antiaircraft fire, and slit trenches are necessary defenses against enemy air. It would seem that reconnaissance units would make poor targets for enemy air, but because of the reconnaissance units' proximity to enemy positions, enemy aircraft frequently attack these units in order to stop forward movement of advanced elements.

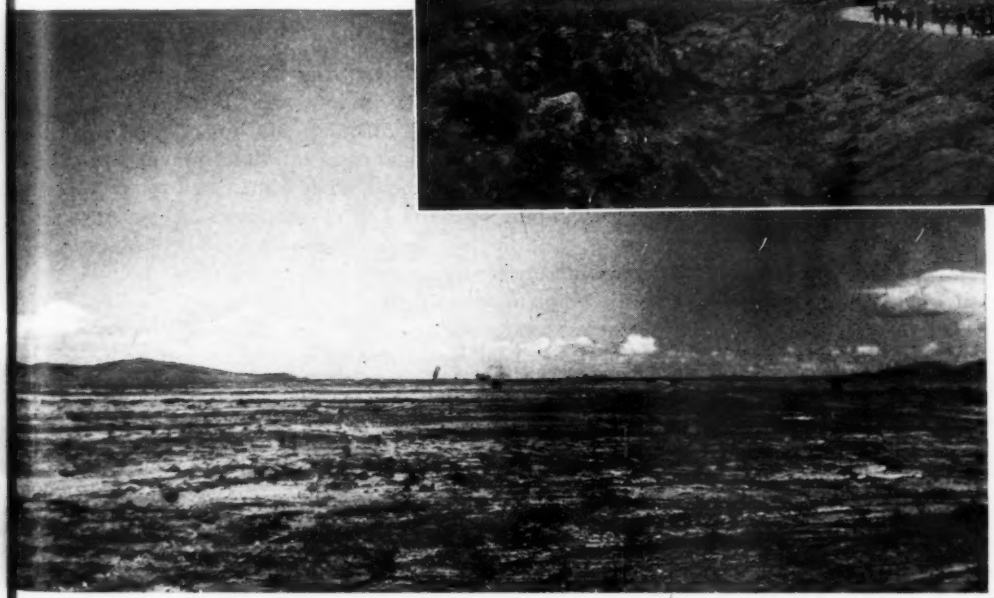
In the valley at Sened, in February 1943, when the enemy had air supremacy in that area, C and A Companies were dispersed along the slopes of the bare rocky hills to the north and south of Station de Sened. Although ten or more Stukas and Messerschmitts attacked several times a day for three days, casualties were very few. Each of the scout cars with the 81st had a .50 caliber machine gun mounted on it. Leaving this gun manned, the rest of the crew usually took cover at a distance from the car and prepared to fire their individual weapons. Men were instructed to hold their fire until the planes came within effective range. It is a waste of ammunition to fire every time a plane is seen unless damage can be inflicted on it. On the other hand, whenever a plane comes within range, it should really be given the medicine.

By the same token, men should not be allowed to get "slit trenchitis"; that is, they should not be permitted to run for a slit trench every time a plane's motor is heard. If permitted to remain in slit trenches, men get morbid, and it is demoralizing to see men who are not in danger run for cover. They should take cover only when necessary. Officers and NCO's should be the last in, and certainly the first out of slit trenches in the event of an air attack.

It is better to have only the gunner remain in the scout car, because the plane (especially if it is a bomber) usually goes for the vehicle; and if the crew is still in a car that gets hit, the loss is great. No difficulty should be experienced in getting a gunner to man the gun; in fact, it was just the opposite in Tunisia. It was

***Right:*** **Infantrymen in Tunisia follow a reconnaissance unit which has preceded them through the mine fields in hot pursuit of the retreating enemy.**

Signal Corps Photo



***Left:*** **Between Gafsa and Maknassy a company of the 1st Armored Division forms for an offensive action against the enemy, *after* thorough reconnaissance has furnished desired information.**

Signal Corps Photo

found that with well trained troops, men would much rather fire the .50 caliber machine gun at the enemy plane than do anything else during an air attack.

### Long Range Artillery Fire

The enemy will try to delay the advance of the reconnaissance elements by long range fire. This fire is not always accurate, and reconnaissance elements must move in under it and continue forward. The men must learn to use their ears and know the characteristics of the enemy weapons. The sound of the shell as it describes its trajectory is very important. Also the degree of loudness, or absence, of the muzzle blast gives information. By using their ears and eyes, troops can determine whether it is long or mid-range artillery, mortars, or antitank fire, that is landing.

At Sened, in February, it was necessary for A Company to withdraw in the face of mid-range artillery and mortar fire. Because of terrain difficulties, the company had to infiltrate through interdictory fire on some of the bottlenecks of our line of retreat. This was done without casualties because the officer or NCO infiltrated his vehicle through the shelled area by listening for the muzzle blast and by knowing from this how many seconds it would be before the shell landed. The Germans did the same thing to us once at Sheitla when they had to cross through our artillery fire. The success of such tactics is dependent, of course, upon the intensity of the fire.

Reconnaissance units must not consider that they have gained contact with the enemy when they receive artillery fire, and they must not be stopped by it unless it is intense. If it is intense, then they have to find a way around it.

### Contact

After passing through the artillery fire, contact with the enemy can be expected shortly. The chances are that the reconnaissance unit can continue mounted through the artillery fire, but movement soon becomes more restricted. The nearer the enemy, the more numerous the mine fields.

Contact is finally gained when the reconnaissance unit has received accurate antitank fire, small arms fire, or has seen the enemy. In any event, when contact is made, the dismounted phase begins. Assuming that this reconnaissance unit which has made contact is a platoon with an attached assault gun, and that the leading vehicle received fire, normally the action should be like this:

The lead vehicle goes for cover, and generally this cover is nearby. The crew should not whirl the vehicle around and go dashing back with the report that they were fired upon. There is no need for pseudo Paul Reveres in reconnaissance; that is, anyone who goes excitedly back yelling "Jerry's coming" or "tanks are coming." This type of soldier can do more damage than the enemy. Usually, the number of enemy tanks this type of soldier saw is increased by the product of the speed of his vehicle, and the distance in yards that he has returned from his initial contact. No excited man should be allowed to pass back to the rear. Properly, the lead car should go quickly to the nearest cover, and a little anticipatory planning helps.

The second vehicle, if possible, returns the fire at the same time that the first vehicle takes cover.

The assault gun, back at the tail of the platoon, should open fire as soon as possible. With the assault gun and the weapon on the second vehicle firing, the crew of the first vehicle is given a break.

A dismounted reconnaissance should be made immediately to determine what opposition the vehicle may have met. In the meantime, the other two teams should have started immediately to by-pass the opposition, or else move so that they can establish observation posts on one flank, or both flanks. This movement should be part of a battle drill, so that it will be done without command, or at most after the briefest order or signal from the commander. Each team knows that it must gain dominant observation and reconnoiter for a by-pass around the enemy. In this, anticipatory planning will pay big dividends. Previous map study should have fixed firmly the key terrain features in the reconnaissance man's mind.

### Establishing the OP

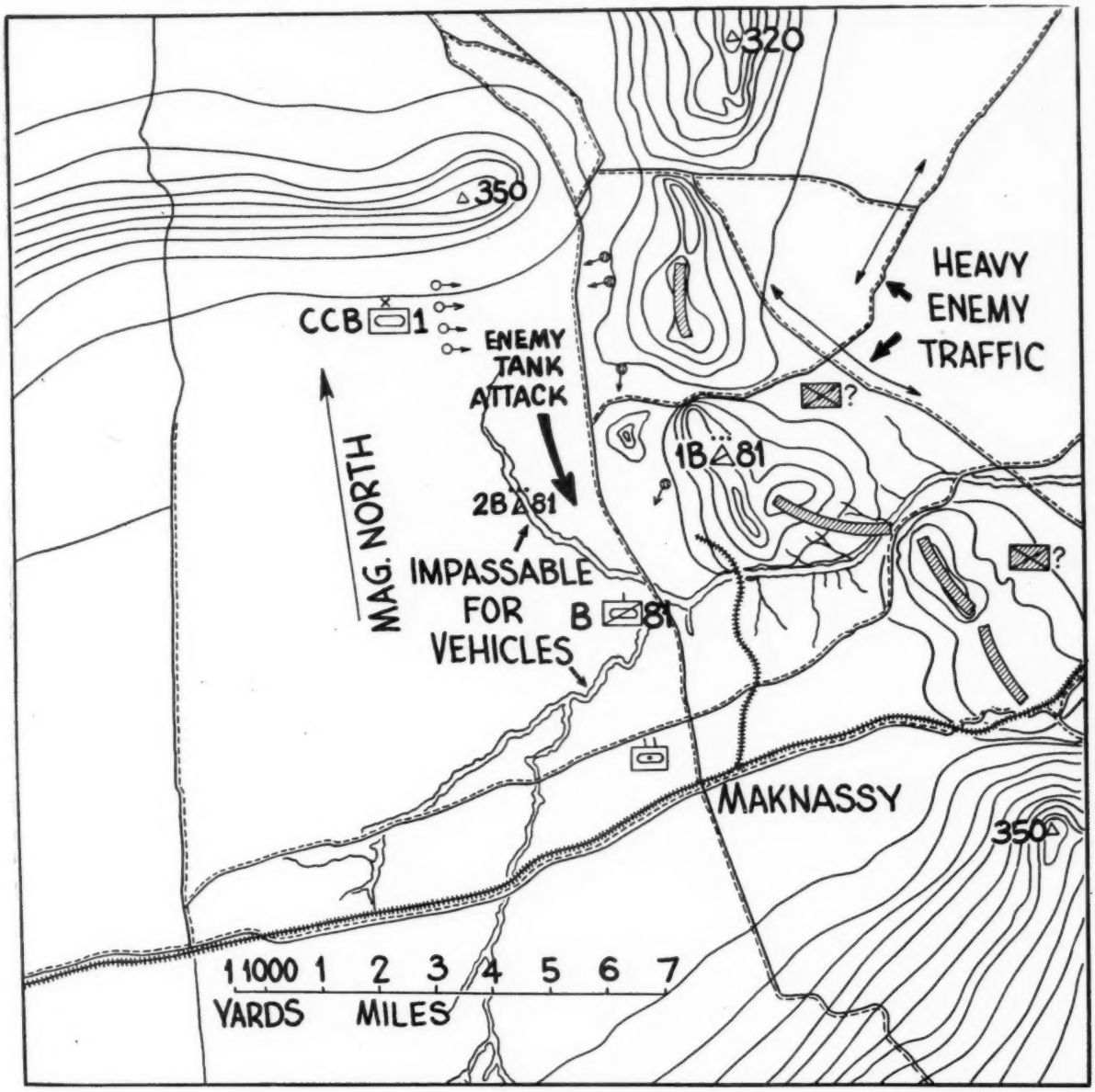
The initial establishment of the observation post will probably be done under enemy observation; therefore, it should be a well protected one.

For the purpose of coherence, let it be assumed that in the example just given, no immediate by-pass is found, but that a dismounted observation post is established on one of the flanks by the second team. Leaving his vehicles at the rear, the leader takes his SCR 510 and machine gun from one bantam, one man from the armored car, and two men from each of the mortar and machine gun bantams—a total of six men—and proceeds forward dismounted.

After his arrival at the OP, the leader immediately pin-points his location accurately, notes his range of vision in all directions on his map, and reports that as soon as possible. The radio is set up, the machine gun is put in position, and the other two men help protect the OP. The longer this OP is maintained, the more work is done on it. The reconnaissance leader, however, should never be satisfied with his OP. He should always want to advance it.

The next movement of this OP, or the establishment of an OP by one of the other teams, will probably be by stealth. If one of the other teams is to establish this second OP, its leader most likely will come up to the first OP, study the terrain, and pick his location and route thereto. It may be necessary to take a circuitous route to the new OP, or even wait until darkness.

At Maknassy, in March, the advance of the 81st had been stopped. The enemy held the Leben Wadi, and the route to the hills northeast of the railroad bridge

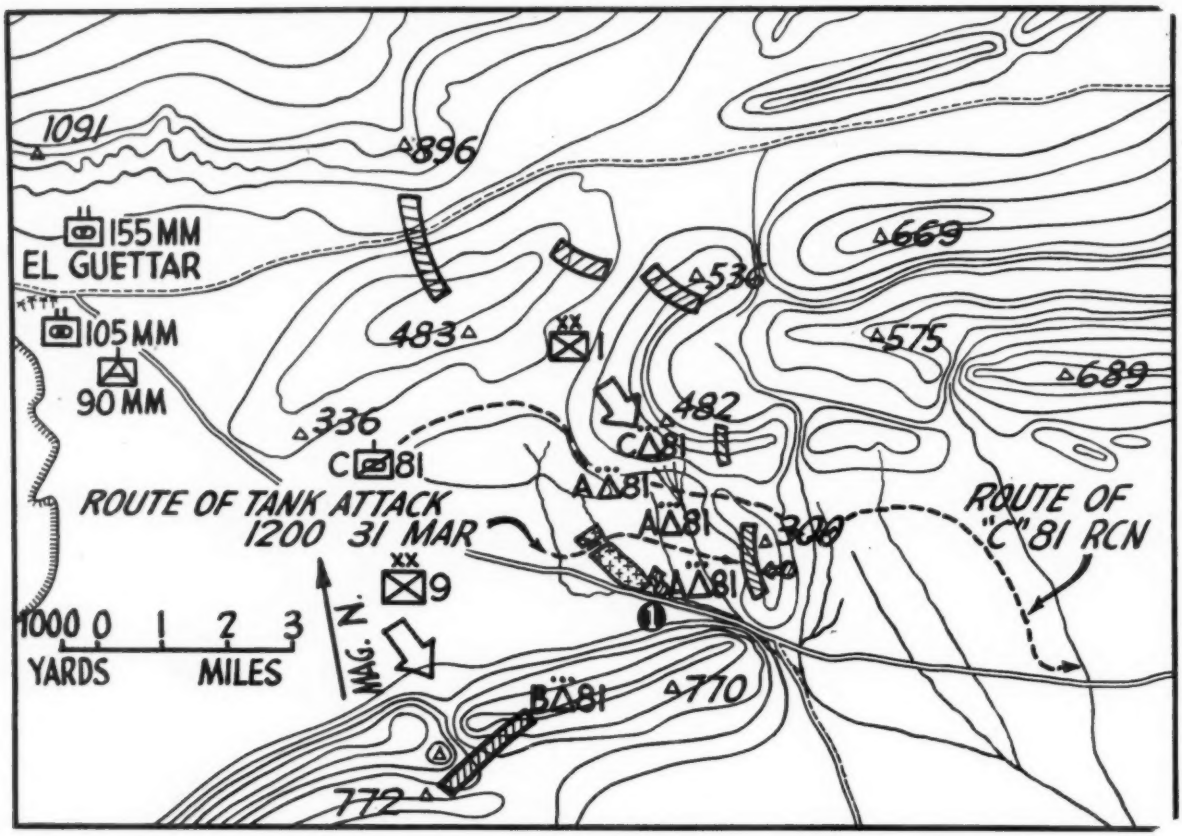



Sketch No. 1.

appeared to be devoid of cover. A patrol, under Lt. Rossman, from B Company moved out that night to establish a dismounted OP on the hills as shown on sketch No. 1. This patrol worked its way through the enemy positions and established the OP. For the next two days this OP was maintained, and it reported much valuable information. The lieutenant adjusted artillery fire on the targets in rear of the line of hills. An enemy tank attack moved south towards the bridges over the wadi on the second day, but it was still possible to maintain the OP. Finally, on the third night this patrol was told to return, as it was out of water and food.

Another patrol under Lt. Lytle went out that night to the same ridge and established another OP. Just as it started to get light, this patrol discovered that just a few yards away was an enemy observation post. The B Company patrol shot first, killed a German artillery officer and NCO and wounded a private. They searched the bodies and took all papers and the German radio over to their side of the hill. Shortly thereafter, the enemy apparently realized that there was something wrong up above and sent a strong infantry detachment to check their silent F.A. observation post. Lt. Lytle had reported the situation, and B Company's three assault guns in the wadi near the bridge opened fire instantly.

Lt. Lytle was ordered back to the troop when the enemy started to close in on him. His patrol carried their captured radio, maps, and papers, and sauntered




**Sketch No. 2.**

back under the protection of the assault gunfire. They found that the ground was cut by many little wadis that afforded good cover and concealment. This was not evident from a map study, nor from a view of the ground from the OP's in the vicinity of the railroad bridge—which is quite often the case. For example, a patrol will move out dismounted, when there is no apparent covered route for vehicles, but by actually moving dismounted over the ground, a vehicular route will be found and this is one way that vehicles can be brought up later.

### Intensified Reconnaissance

In the original situation stated earlier, after the first team had come under fire, the second team established an OP under enemy observation, and the third team established one by stealth deeper in the enemy's position.

After that, the platoon begins the intensified reconnaissance phase, marked by bold aggressive action. The situation must be developed further and the initiative taken away from the enemy. The remainder of the platoon must be so disposed as to protect and maintain the second team's OP. The enemy will not let a reconnaissance unit sit complacently on an OP and keep it. The more timid the reconnaissance becomes, the more brazen the enemy becomes, so he must be shown very definitely that the reconnaissance intends to keep that OP.

In the Mouse Trap area south of Mateur, one of C Company's platoons had an OP within 400 yards of an enemy position on Dj Badgar. The enemy knew that the OP was there, and finally sent a platoon out to get it. The C Company lieutenant on the OP saw the platoon coming and alerted his two attached tanks, which were in a covered position about 200 yards in his rear. The tanks came out, guided by radio, swung around the little knoll where the OP was and opened fire with canister. The tanks killed or wounded all but seven men, who were marched back to Allied lines in front of the buttoned up tanks. All this was done in plain view of the enemy on Dj Badgar. It apparently was most impressive, as the enemy did not bother that OP any more.

The 81st continued to outpatrol the enemy in that area day and night, and soon became the more brazen of the two.

The troop and squadron commanders are better suited to order and coördinate night patrols than the platoon leader. Night patrols must be planned thoroughly, and a single definite mission must be given in an ice clear order. (Reconnaissance units in Italy

have been reported to have sent several patrols five to seven miles behind the enemy lines and stayed back there around three days.)

The enemy will try to drive the OP off by harassing artillery and mortar fire. Quite frequently he may only suspect that an OP is there, but it is well to remember that he must maintain a continuous fire before he can prevent the OP from being manned.

### Maintaining Contact

If the reconnaissance platoon reaches the enemy's main defensive line, the situation becomes more developed and even tends to become stalemated. Quite frequently, some of the artillery forward observers join the reconnaissance platoons on the latter's OP's, or they may have accompanied the reconnaissance platoon. Friendly infantry moves up into the vicinity, and the battle is begun in reality.

The big job that the reconnaissance elements then have is to maintain contact. Continued manning of OP's, day and night patrols and listening posts at key points are necessary for two reasons—to give timely warning in the event of a counterattack, but mainly, to prevent the enemy from secretly withdrawing. It must be realized that the enemy will try to withdraw at night, and it is a hard job to maintain contact during this period. The enemy will probably leave a shell of his forces and increase his activity on the front by patrols, raids, and artillery fire. Meanwhile, he may be withdrawing the bulk of his forces back to their new position. Reconnaissance elements must assist in discovering this operation in time to permit friendly forces to interfere with it.

If the enemy fails to make a night withdrawal, and the stage is set for the big drive to crack his position, reconnaissance units in contact with the enemy normally will be informed in ample time to get ready for the break-through. Every single man in the affected reconnaissance unit should know what is scheduled and when. By that is meant that he should know, for instance, that the artillery is going to lay down a terrific concentration at 0700 tomorrow for one hour, and then the infantry is to jump off, and the armor is poised back behind ready to go through.

The reconnaissance mission for the big drive will be to locate enemy resistance and any available by-passes and find routes for the exploiting force. The reconnaissance platoons waiting for the artillery to open up should be straining at their leashes. As soon as the artillery opens, or shortly thereafter, they should start probing. The break-through does not happen until after the infantry wipes out all enemy defenses, but it should be initiated sometime during this phase, not after. It will be too late then. Six platoons may probe during this time, and if two make it, then two routes through the enemy position will have been made for the exploitation force. A few days before, these same two platoons might have been stopped by antitank positions, but on the morning of the break-through, because of artillery fire, the enemy cannot man his weapons effectively, and these two platoons get through.

At El Guettar in April the 81st Reconnaissance Battalion was disposed as shown on sketch No. 2. After several days of battle, the enemy's resistance started to crumble. At dawn on 8 April, Lt. John Souther's C Company platoon started probing on the north flank. Inching its way forward, it slipped north of the enemy position, and behind it, then cut to the main road, and raced east towards Gabes. At that time, about 0730, there was still considerable enemy action back behind the platoon. The men felt confident, however, that the American mobile force was going to follow right behind.

The entire reconnaissance battalion poured through Souther's gap and was followed by tanks, tank destroyers, armored infantry and armored artillery. Contact with an enemy tank column was gained about 25 miles east, and about the same time the leading elements of the British Eighth Army were met. The battalion helped rescue some British lancers who had been captured, and took over 700 prisoners that day. Night fell with the battalion in contact with an enemy tank force, and a fire fight continued throughout the night

### Conclusion

*No matter how bold or aggressive the action becomes, the reconnaissance soldier must never forget that he is out there mainly to get back accurate, complete and timely information.*


## Modern Reconnaissance

***The most serious lack in the military literature of this war has been an adequate book on reconnaissance. The insistent demands by men in training and on the battlefront for a single volume which would comprise the important information thus far secured on the subject has given birth to the new and comprehensive book,*** **Modern Reconnaissance,** ***to be published by The Cavalry Journal June 1st.***

***The Table of Contents of this book includes articles on training for reconnaissance units, information on the problems met in various war theaters, and stories of the practical value of reconnaissance in actual warfare by men who participated in the action described.***

***The format has been planned with an eye to the needs of men "travelling light." Excellent maps for study in connection with the articles are included as well as an abundance of illustrations, yet the book has been kept to a convenient size to pack easily, or fit into a uniform pocket.***

***(See inside front cover for Table of Contents.)***

British Official Photo

This German "secret weapon" was captured on the Anzio Beachhead, Italy. Known as the "Doodlebug," it is cable-controlled. Approximate length, including bumper bar, 69 inches; length excluding bumper bar, 51 inches; height, 25 inches. Explosive chamber holds 250 rounds and construction appears to be spot-welded throughout. The side plates over the battery and electric motor are slightly under one-tenth of an inch thick, while an extra plate one-quarter of an inch thick has been added to increase protection to the front. Photo at left above shows side view. The rear compartment holds the storage battery, while the electric motor with direct drive to the driving sprocket is in the forward compartment. The arrangement is duplicated on the opposite side. Photo at right above shows drum holding the control wire. U. S. Ordnance discarded idea in 1935. Its use by Germans has not been successful.

Press Association, Inc.

A Fifth Army soldier inspects machine-gun mount in a German portable pillbox in the Cassino area. Rumored to have been brought down from the Mannerheim Line, this pillbox controlled the plain leading up to Vallerotonda and St. Elia in background. U. S. soldiers now use flame throwers against such fortified emplacements in Italy.

# Editorial Comment

### "And It Came to Pass"

In the January-February (1942) issue, THE CAVALRY JOURNAL carried an article containing the speech made December 3, 1941, by Major General J. K. Herr (then Chief of Cavalry) at the annual meeting of the Horse and Mule Association of America.

In the past two years the JOURNAL has published a number of articles dealing with the brilliant successes of the Soviet army. Some of the articles have been written by well known and authoritative military officers; others by war correspondents in the Soviet army. Many of these articles deal with the combined use of cavalry, tanks, motorized infantry, and air forces. Especially is the cavalry-tank team emphasized as a big contributing factor in the exploitation of the Red Army's successes and break-throughs. This complete utilization of all the horse and motor resources of a nation has been coördinated by a common purpose—the destruction of the Nazi armies.

The conclusion of General Herr's address of December 3, 1941, is reprinted here because it seems amazingly prophetic of the Russian war machine of 1943-44.

***From the standpoint of military efficiency and a balanced use of our horse and motor resources, it is believed we should use animal instead of motor transport in a proportion of our marching divisions.***

***We should add to the Armored Force and Motorized Infantry Ground Exploitation Team, divisions and corps of cavalry to produce the greatest exploitation force yet devised.***

***The most effective reconnaissance is accomplished by motor plus horse. We should have horse reconnaissance groups with all infantry echelons from regiment to corps.***

***The strategic mobility of cavalry divisions should be amplified by the use of motor transport, consisting of truck-tractors with semi-trailers to transport cavalry divisions on long road marches.***

***The power of armored forces will be diminished because of the threat of antitank and air power.***

***The relative power of cavalry will increase because of its power to evade destruction from the air by cross-country mobility and dispersion. Cavalry will be able to disperse, evade, continue on its mission, and fight.***

**—Major General John K. Herr, Retired,**
***The Cavalry Journal,* January-February, 1942.**

See article "Are Horses Essential in Modern War," Page 2.

### National Horse Roster

The first number of Don Henderson's *National Horse Roster* reached this office a few days ago. It is an excellent little bi-monthly pamphlet listing horses of all types for sale and giving items of interest to horse owners. If you are a horseman or are interested in keeping abreast of horse news, get in touch with Don Henderson, Box 186, Berryville, Va. and get a copy of this "newsy" National Horse Roster. You will find it enjoyable reading.

* * *

### Preventive Maintenance

*Preventing* damage helps maintain the fighting efficiency needed to win the war.

* * *

Take a load off your mind. Use *Preventive* Maintenance instead of *heavy* maintenance.

* * *

The value of Preventive Maintenance cannot be estimated in terms of dollars and cents. It should rather be counted in terms of the battles it can win and the lives it can save.

* * *

A stitch in time saves nine and is not nearly so embarrassing. Sometime when you forget to take a few stitches of Preventive Maintenance you might be embarrassed to death.

* * *

The Preventive Maintenance services you perform do double duty. First, and most important, they protect your life and the lives of those around you by keeping your fighting weapons in fighting condition. Second, they save your equipment from needless wear and tear, and the resulting waste of time and money required to replace or recondition it.

* * *

Maintenance is a war job—*your* war job. So make it easier for yourself. Remember that *Preventive* Maintenance is the *easiest* maintenance.

* * *

"It's not the cost, it's the upkeep" is an old phrase, but it has a new meaning when applied to Army equipment. For truly, it is not the cost that matters now, but the *upkeep.* And that upkeep depends on *you* and the Preventive Maintenance services you perform.

* * *

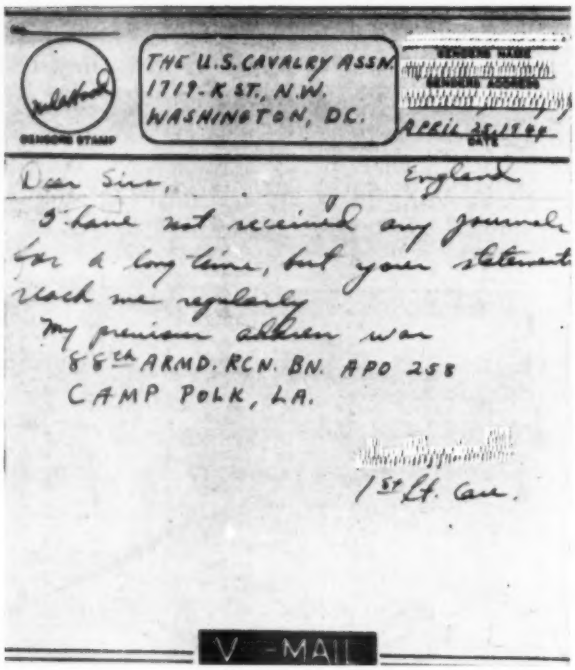
Preventive Maintenance is *not* a military secret. So talk about it to everyone, and perform it on everything.

* * *

### Your January-February, 1944, Issue

**This issue is now out of print and unavailable. If you have finished reading your copy *please* send it back to The Cavalry Journal office.**

## Are You Getting Your Cavalry Journal?


THE U.S. CAVALRY ASSN
1719 K ST., N.W.
WASHINGTON, D.C.

CENSOR'S STAMP

CENSORS NOTE
REMOVE ADDRESS

APRIL 26/1944
DATE

England

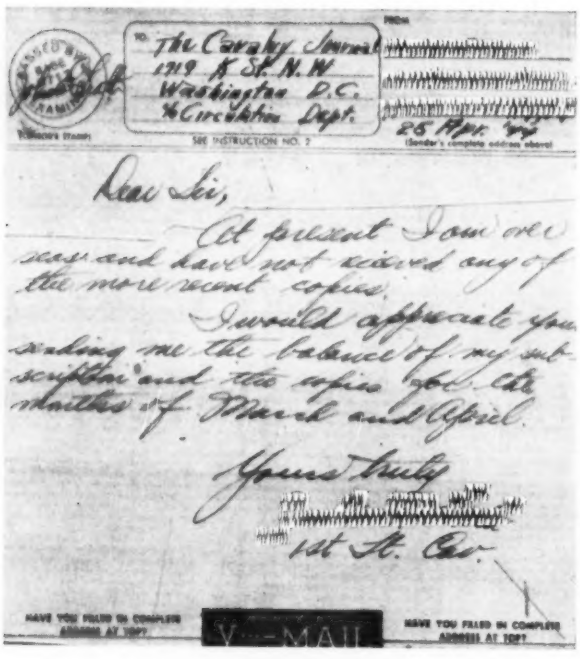
Dear Sirs,

I have not received any journals for a long time, but your statement reach me regularly

My previous address was
86th ARMD. RCN. BN. APO 258
CAMP POLK, LA.

1st Lt. Cav.

V-MAIL


CENSOR'S STAMP

To The Cavalry Journal
1719 K St. N.W.
Washington D.C.
%Circulation Dept.

SEE INSTRUCTION NO. 2

From

25 Apr. 1944
(Sender's complete address above)

Dear Sir,

At present I am one copy and have not received any of the more recent copies.

I would appreciate you sending me the balance of my subscription and the copies for the months of March and April.

Yours truly

1st Lt. Cav.

HAVE YOU FILLED IN COMPLETE ADDRESS AT TOP?

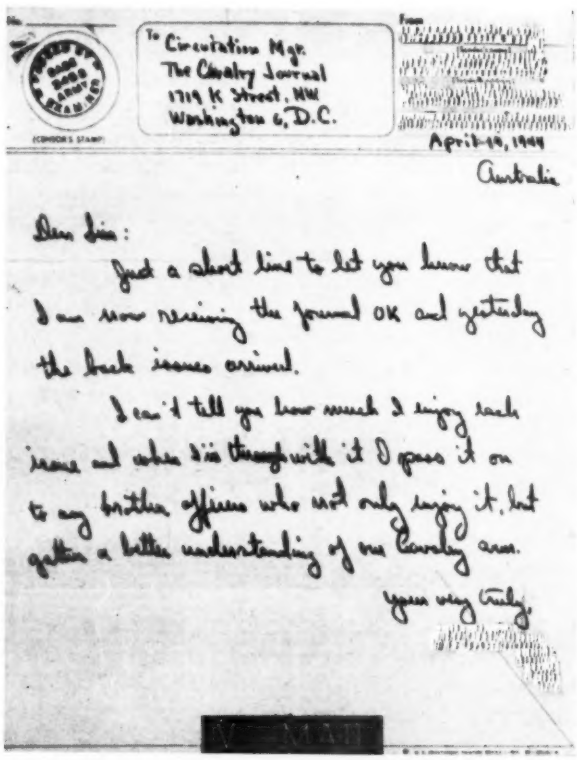
V-MAIL

HAVE YOU FILLED IN COMPLETE ADDRESS AT TOP?

The two letters shown above are samples of many received from officers who have gone overseas, but who have neglected to send us their new address. As a consequence, they have not received their copies of THE CAVALRY JOURNAL. Although all mail is supposed to be forwarded to men in the service, it does not always work out that way. THE CAVALRY JOURNAL is fourth class mail, and as such does not receive the same prompt handling as does first class matter. Sometimes these magazines are returned to us; sometimes they are forwarded; but often they are "lost." In the first letter compare the "present address" with the "previous address," to which we had been sending THE CAVALRY JOURNAL. Is there any wonder that delivery was not made?

When complaints such as these are received, every effort is made to replace all missing copies of THE CAVALRY JOURNAL—*as long as extra copies are available.*

Shown below is a letter from an officer for whom such a replacement has been made. When handled in this manner, however, one copy of THE CAVALRY JOURNAL is wasted for each duplicate mailed, and the Post Office must handle two pieces of mail in order to deliver one. This places an additional and unnecessary load on a postal and transportation system which is already overburdened—"unnecessary" because a postal card giving the new address, would have solved the problem.


CENSOR'S STAMP

To Circulation Mgr.
The Cavalry Journal
1719 K Street, NW
Washington 6, D.C.

From

April 10, 1944

Australia

Dear Sir:

Just a short line to let you know that I am now receiving the journal OK and yesterday the back issues arrived.

I can't tell you how much I enjoy each issue and when I'm through with it I pass it on to my brother officers who not only enjoy it, but gather a better understanding of the Cavalry arm.

Yours very truly,

V-MAIL

It is not always the matter of a transfer overseas that causes a subscriber to lose his CAVALRY JOURNAL. Letters similar to these are also received from officers still in the United States. If you were formerly stationed at "A," and are now stationed at "Z," it is probable that your CAVALRY JOURNAL is still being mailed to "A" unless you have sent in your new address. Perhaps it will be forwarded from "A"; perhaps not. It would be much simpler, however, if you will arrange to let us send your mail direct to you.

# General Hawkins' Notes

## Action of a Patrol When Fired Upon

SOME general remarks about reconnaissance and patrols were included in my Notes published in the September-October, 1943, number of THE CAVALRY JOURNAL.

It is assumed that the difference between various types of patrols is understood, and that the value of cavalry for reconnaissance is also understood. This may be a rash assumption in view of the suppression of horse cavalry in the American and British armies. The value of the tank-cavalry team has been demonstrated thoroughly in the Russian army, both for reconnaissance and for battle. The value of horsemen for patrolling has been demonstrated in Italy. These Notes, when discussing reconnaissance or some of the details of patrolling, refer to cavalry reconnaissance or the tank-cavalry team in the performance of that duty. This particular Note offers some suggestions as to one very common situation that so often arises in the performance of patrolling.

Almost all young officers find themselves wondering about *what to do* if, while leading a patrol or point of an advance guard, they suddenly come into contact with an enemy of undetermined strength who fires upon the patrol from a concealed position.

The enemy may be a small patrol or large force. The column behind the point must not be delayed unnecessarily. But the point or patrol cannot risk advancing to attack until its leader knows something of the strength of the enemy. And part of the mission of the point (or even a reconnaissance patrol under the same circumstances) is to ascertain the strength of the enemy.

The following brief formula has been found useful for the *procedure of a patrol acting as point of an advance guard or acting alone, which comes under light fire from an enemy of undetermined strength:*

First: *Take cover*—to right, left, forward or rear, and keep scattered.

Second: *Take a look!* The patrol leader rushes to a point from which he can see, and searches with field glasses the place from which the fire came. Usually, not over two minutes should be taken for this.

Third: *Act!* If the patrol is the *point of an advance guard* or *a patrol of a covering force,* and the leader is unable to determine by observation the size and nature of the enemy, he immediately forms his patrol as mounted skirmishes with about ten yard intervals and moves rapidly *by the route giving the best cover* to reconnoiter the enemy position. If the patrol is the *point* of an advance guard, this must be done promptly within a zone not over 300 yards on either side of the axis of march.

If the patrol is acting alone as a *reconnaissance patrol,* it is of course not confined to any zone of action, and the leader decides to reconnoiter the enemy if his mission requires a report on any sign of the enemy—or, he may decide to avoid that element of the enemy and go around it and proceed toward certain areas which his mission requires him to explore.

If the patrol is a *combat patrol,* it must remain under cover and in readiness to resist the enemy advance so as to protect that flank from surprise attack until the column from which it was sent out has passed that point. In the meantime the leader of the combat patrol sends in reports to keep his commander informed.

If the patrol is a *connecting patrol* sometimes called *liaison patrol,* it avoids combat if possible and attempts to keep its relative position between the forces that it must keep connected. The presence of the enemy, of course, is reported.

It is obvious, therefore, that after his first two actions, taking cover and taking a look, the leader must determine his third action in accordance with his mission and special instructions.

In certain country a patrol is liable to find itself at times *without any cover* near it when it is fired upon, and no cover between it and the place from which the enemy fire apparently comes. In such a case, the action depends upon the mission.

If the patrol is a point or a covering detachment, it must determine the position and strength of the enemy, and the only solution is to deploy at once as foragers (mounted skirmishers) at about ten-yard intervals. Then the patrol separates into two groups with a 100-200 yard interval between groups. Each group gallops at speed toward the enemy to draw his fire or drive him out if he is only a small patrol. If this procedure draws heavy fire or discovers the enemy to be in force, the patrol will have accomplished that part of its mission, and the two groups should retreat at full speed in divergent directions. The supporting forces then take over the action.

If the patrol is a reconnaissance patrol, it may be required to move widely around the enemy in order to reconnoiter the area or areas as required by its mission.

Armored car patrols can carry out these same principles, with some modifications; but infantry patrols cannot act so boldly and when there is no cover, must merely deploy and remain in observation while reporting to the next higher commander. When there is cover for an infantry or dismounted patrol to use in advancing to reconnoiter the enemy more closely or to explore areas as required in its mission, it uses such cover by the same principles as those controlling mounted patrols except that they cannot go as far or act as boldly.

# With the 26th Cavalr

## *by Major Arthur K. Whitehead, Cavalry*

### Jap Attack

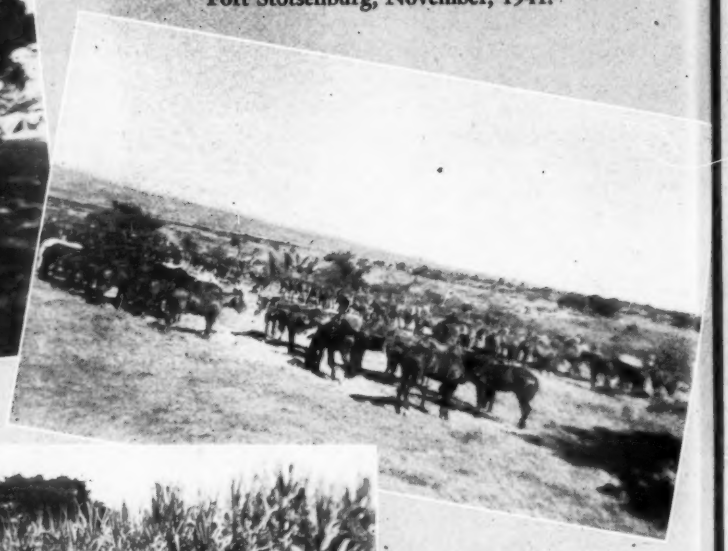
ON Sunday, December 7th, 1941, the day before the Asiatic War broke, the 26th Cavalry Regiment (P.S.), less one troop, was at Fort Stotsenburg, Pampanga. Troop "F," detached, was stationed near Nichols Field, Manila. The regiment was composed of three squadrons—two rifle squadrons and headquarters squadron. The rifle squadrons consisted of three rifle troops each—"A," "B," and "C" in the first squadron; "E," "F," and "G" in the second. The rifle troop was composed of two rifle platoons and one light machine gun platoon, plus troop headquarters. The rifle platoons had from two to three squads each; the light machine gun platoon always had two complete squads, which had a total of four guns. Troop headquarters consisted of mess, supply, administration and stables. There were about 90 enlisted men in each rifle troop, and men were drawn from the troops for both squadron and regimental headquarters.

Headquarters Squadron consisted of Headquarters and Service Troop and Machine Gun Troop. Headquarters Troop consisted of a communications platoon, a scout car platoon, and a transportation platoon plus troop headquarters. Machine Gun Troop, as I remember, had one platoon of .50 calibers—two guns, and two platoons of .30 calibers—water-cooled machine guns; total, 8 guns. Officers were American—a total of about 36.

For several months preceding the Japanese attack, the regiment had been training with the idea in mind that it was actually at war. Troops never moved out of stables without full pack and ammunition; night problems and marching were stiff and exacting. All different phases of tactics were first studied in the classroom, then executed by platoons on a competitive basis. Critiques afterward spared no one including the regimental commander. Blank ammunition was used in revolvers on mounted problems to accustom men and horses to the firing.

Special attention was given to conditioning the

Officers tent line in camp near Fort Stotsenburg. Pictures were made and sent home by the author prior to the Jap attack.



A squadron picket line in camp about 20 miles south of Fort Stotsenburg, November, 1941.

A herd of carabao driven along a Philippine road. A barbed-wire fence surrounds the sugar-cane field in background.

# ary (P.S.) IN THE PHILIPPINES

## December 7-22, 1941

horses and keeping them in good shape. In the Philippines, it seemed that more horses were on sick report than was usual in the States, and most of their trouble appeared to be due to bad feet or bad backs caused by the heat and excess moisture in the air and ground. Horseshoers, who previously had not seen a book for ten years, began to use manuals on horse-shoeing and care of the feet as their bible. Burlap sacks were placed underneath the horse blanket but without successful results. A particular effort was made to keep the men sitting forward and in the middle of their saddles. After a long march, horses were led with the cinch tight. Back in stables, the cinch was loosened while the saddle was left on. Then the saddle was removed, the blanket turned, and the back rubbed. Every platoon leader stood stables every day with a rod in his hand. This brought remarkable results. Horses and pack mules with full pack were made to jump a two-foot barrier every day before entering stables.

Every horse in the regiment was taught to load on and off a transport truck. Much patience was required, but a perfect system was finally evolved. One man was stationed on each side of the truck with the sole duty of tieing the horse down after he was in position. One man stood on each side of the ramp near the truck to steady the horse on the ramp. Another man stood on each side at the base of the ramp with a rope which, if the horse hesitated, was passed between the two men, placed just above the horse's hocks; and, with a little forward force on the part of the men, the horse rode up the ramp.

For a month and a half prior to the war, a platoon with a squad of light machine guns attached stood parachute watch every day from a half hour before dawn to one hour afterward.

Major Whitehead, at right, with another officer of the 26th Cavalry at Dingalan Bay on the east coast of Luzon, July, 1941.

**As a lieutenant with Troop "A," 26th Cavalry (P.S.), Major Whitehead witnessed the Jap attack on the Philippines, saw Stotsenburg bombed, marched north with the regiment and fought the Japs at Lingayan Gulf. His story is the first eye-witness account to have been brought home by a cavalryman.**

Troop "E" stables, Fort Stotsenburg.

Ferrying horses during training in August, 1941.

At 0100, 8 December 1941, Troop "A," to which I was assigned, left the stables for a night march to an area between Capas and Camp O'Donnel, Tarlac. The troop arrived about 0700 and went into bivouac. After grooming the horses, the men had breakfast and lay down to rest.

At 0800 an officer-courier arrived with news of the Pearl Harbor attack, and delivered instructions for the troop to join the regiment in the Bamban River Valley after dark. The rest of the 26th had left Fort Stotsenburg at dawn for this valley.

I believe that it was on this first day of the attack that Troop "G," with scout cars attached, was sent by truck with animals to the Baler Bay and Dingalen Bay areas on the east coast. (Lt. Ramsey, sent with this troop, was later mentioned in Captain Wheeler's report of the Moron fighting (March-April, 1943 CAVALRY JOURNAL) so the troop must have been pulled out before the Japs reached Cabanatuan, Neuva Ecija, as that would have been its only outlet.)

Guns were loaded, helmets covered with mud, and air scouts posted. The kitchen truck was camouflaged, and the horses checked for overhead cover.

At the time, the troop was bivouacked in a rolling, foothill country. Rice paddies filled the depressions, while innumerable bamboo clumps bordered the streams, and cogan grass covered the surrounding hills.

There was not much danger from enemy ground action that first day. The most important precaution was to have fair warning of air attack—and since the higher the OP, the better the observation, a light machine gun and rifleman were sent about 500 yards west to the highest hill in the vicinity. The rifleman was to relay signals to the troop. The most serious danger was from the west. There the Zambales Mountains rose three or four miles away, and from that direction fast, low-flying planes could get in quickly. Another observation post with the same set-up was established about 100 yards to the east. Machine guns were to fire only if the troop was attacked, for it was definitely to the troop's advantage to keep its position secret.

At about 1230, the post to the west signalled "airplanes." From the north came the barely audible drone of heavy motored planes. Soon they could be seen flying in perfect formation at an altitude of 15,000 to 20,000 feet—their silver bodies glittering in the sun.

At first we hoped that the planes were ours, but as they passed overhead there was no mistaking the dark blotches on the underside of the wings. They were the first Jap planes that we had seen. There were 54 of them—twin-engined, medium bombers, flying in two formations of 27 each and heading south toward Fort Stotsenburg and Clark Field. We watched them disappear in the mist, and soon heard the heavy *umph* of bombs landing, mixed with an occasional faint rattling of machine gun fire.

A few minutes after the planes had passed over on their way to the south, they returned—all 54 of them—in their same perfect formation. By this time, we could see dog fights in the air over Clark Field. One worked up close to us. Two planes were after a single plane. We hoped the two planes were ours, but soon the lone plane trailed smoked and glided off into the Zambales Mountains, and it was easy to see that it was one of our P-40's. Clouds of smoke were rising from the vicinity of Clark Field and Stotsenburg.

At 1500, Troop "A" started for the Bamban Valley. Although groups of two or three Jap fighter planes had been in sight most of the afternoon, because of the limited time allotted for the march it was necessary to follow the highway, which had barbed wire stretched along each side for most of the way. Between our bivouac and the Bamban Valley the country was largely rolling, broken here and there by bamboo thickets.

The troop marched on each side of the road in columns of twos in staggered formation with about 5 yards distance between horses. Platoons had about 25 yards distance. In case of air attack, where the barbed wire made it impossible to go to right or left, the only thing to do was to increase distances—using either the 2d or 3d squad as the base, depending on the cover available—then dismount and try to find a depression to lie in. When and how to increase distances and find cover were matters left to the initiative of the squad leader and his second in command. Four men of each squad were on opposite sides of the road. When it was possible to get off the road, the platoon broke up into groups of fours when disperse order was given. On that first day, however, the troop was not bothered, and went into bivouac with the regiment about 2200. The kitchen truck waited until dark to come in.

**Troop "E" picket line in a forest west of Fort Stotsenburg. Picture was made a short time before war broke.**

The Bamban River Valley north of Fort Stotsenburg is a broad deep gulch possibly three miles wide with banks in places 75 to 100 feet high. The bottom is covered largely with a thick low brush, tall enough to

give good cover to horses. Through this brush runs a broad river.

The 26th Cavalry was dispersed up and down the river over an area a mile or a mile and a half in length. Troops were given different times to water the horses, and a troop never watered more than a platoon at a time. This precaution was necessary, as most of the troops had to go into the open to water and even by the second day of war enemy fighters were over us occasionally. Being in a valley made it easy for the Jap planes to surprise us. When they were over us the main thing was not to move. The kitchen trucks were hidden right with the troops. Squads at a time filled their mess kits, then went to their area to eat.

A great deal was left to the squad leaders and the second in command of squads. Dependence on them became greater each day that the war progressed. In the middle of the night and sometimes during the day it was impossible for a platoon leader to get around to check everything. The second in command of a squad had to have his men with him, ready all the time, and also had to be in contact with his squad leader. The squad leader had to have his squad under his thumb and at the same time be always in contact with the pla toon sergeant.

### In and Near Fort Stotsenburg

On the morning of the 9th, some of us from the troop went into the Post to get out the war gas masks and find a few odds and ends of equipment that we thought we might need. Fort Stotsenburg had been bombed and strafed, but the damage done was nothing comparable with that described at Clark Field. It was reported that two hundred men had been killed on Clark Field the previous day, besides the runway, shops, and hangars made almost useless. A good number of the planes around the field had been destroyed, yet it was reported that not a dummy plane had been attacked. Our planes had been in the air most of the morning of the 8th, and it was said that they drove off one attack on Clark Field, which forced the Japs to unload their bombs on Baguio on their way back.

By the morning of the 10th, Air Force personnel from Clark Field were coming to our mess to eat. Many had not eaten since noon of the 8th. They had no idea where their units were or where they should be.

On the afternoon of the 10th, the 26th was ordered into a position in the hills northeast of Clark Field in readiness to nip an expected paratroop landing on the field. The regiment was dispersed along the edge of the field under cover. Its mission was to ride out as the enemy was landing and break up the Jap troops before they could become organized. The operation would be supported by our machine guns already in good positions.

At this time we got a look at Clark Field. Shot and burned up planes were strewn around in many places. The runway was full of craters. Several of the buildings were burned, and enemy strafing had been so intense that those still standing looked like sieves. The Japs had done a thorough job.

Just before dark, the 2d Squadron marched east into an area where paratroops had been reported to have landed. The 1st Squadron combed the immediate vicinity east of Fort Stotsenburg and Clark Field, and took up an outpost position for the night on a north-south line about five miles east of Stotsenburg. It was found that the parachutists had been our own pilots jumping from crippled planes.

The morning of the 11th, we were awakened by antiaircraft fire. In the dim light Jap bombers were passing overhead about 10,000 to 15,000 feet up, but our AA fire did not bother them. From this day on we saw very few of our planes in the air; the Japs took up most of the space. From time to time during that morning, more Jap bombers passed overhead within range of our antiaircraft, but the fire of these guns was not effective. We went over to kid the gunners and asked them when they were going to learn to shoot. They told us that most of their gunners had gone home on the order releasing men over 28 years of age, and that recruits were doing the shooting.

That afternoon the 26th Cavalry assembled and bivouacked in a wood near Taconda hill, a mile and a half south of Stotsenburg. Just before dark three Jap fighters located the position and (after appearing to take pictures) strafed the area. Troop "A" area was well sprayed but received no casualties. As soon as it had bivouacked, the men had dug slit-trenches. Clark Field had already proved these had to be L shaped and deep enough for a man to get his head a foot under ground. Some of the Scouts had built the sides of their trenches up with the trunks of the banana trees; the pithiness of the banana tree had an amazing ability to slow up a bullet. At the time of the attack the light machine guns were in position, and at one time it was noticed that the tracers bounded off the armor of the Jap fighters.

To put out air scouts in the day time had become as standard as digging slit trenches the minute that the troop went into bivouac. I do not remember that the troop was ever surprised by planes. Besides picking good positions for air warning observation and having a good system of transmitting signals, every man in the troop was alert at all times for the sound of planes. Talking was subdued. Men even walked quietly. When walking along, they shifted their eye from one foxhole to the next or from one depression to the next. For a bomb to get a man lying in a depression it had to land nearly on him. The only protection from intense strafing lay in being dug deep in the ground. For the horses, it was found that their best protection was in having them tied in a river bed or some other depression, well covered from above and with as much dispersion as the area allotted to the troop allowed.

It was not necessary to prohibit smoking after dark,

as the men realized the danger of detection involved, and of their own volition stopped smoking at night. The white G.I. mosquito bars were dipped in coffee to keep them from looking like rocks of phosphorus when spread out.

It was the beginning of the dry season, so troops could sleep on the ground.

The morning of the 12th the 1st Squadron held officers call at the regimental headquarters building at Fort Stotsenburg. The appearance of the Post had changed considerably. Foxholes had been dug everywhere. Machine guns, with Scouts lolling beside them, were in position for antiaircraft fire. The parade ground and polo field were broken here and there with sets of trenches. At the west end of the parade ground near Post Headquarters a battery of 2.95's was in position as defense against a possible Jap paratroop landing. Hong Kong Street and the Post Exchange were both crowded with men getting little last necessities, sending radiograms, and having a last drink. Our own quarters were just as we had left them. We went up to the club to have our last beer there and felt fairly certain that it would be on the house.

Two Jap prisoners who had been shot down looked very tough with their brisk black mustaches and close cropped hair. It was rumored that a German pilot had been shot down on the 8th. There was also a story of the Negritos, the black pigmies of the Zambales Mountains, who were said to have brought in on their spearheads the heads of two Jap pilots shot down and had said, "Send us more."

**March of the 26th, Stotsenburg to Lingayan; the regiment fought a desperate rearguard action back to Bataan.**

At 1030 officers of the 1st Squadron assembled on the porch of headquarters building of the 26th. The clouds were thick that morning and not over 3000 feet high. Now and then it drizzled a little. The meeting had barely started when from the direction of Clark Field to the east there came the faint *umph* of bombs exploding. As the seconds passed, the sound of the bombs became nearer, and soon the planes themselves could be heard. Everyone got into trenches and holes in front of headquarters and watched them come from Clark Field, out of the mist and over Stotsenburg—releasing their bombs as they moved forward. They came over, then still dropping bombs, circled to the south. It was possible to look up and see the bombs in the racks, and everyone felt that each bomb was coming right into the hole where he sat. The machine guns did a lot of firing but no planes fell.

Clark Field had had another good working over. One bomb landed on an antiaircraft gun and blew the gun and crew into a thousand pieces. A bomb in back of regimental headquarters had hit a jeep squarely. The driver was about ten feet away in a hole and unhurt. The Jap planes wrecked two of the barracks, two of the stables, and the motor pool in the area of the 26th. The sick horses were grouped together in stalls in Machine Gun Stables, and one bomb got 12 of them. Word arrived that the regimental bivouac area had been bombed, so the officers hurried back.

In troop "A" two horses, badly wounded from the shrapnel, had to be shot. One man was hit because he had failed to lie down.

I believe that it was on this day that a detachment of scout cars from the 26th Cavalry (under Lieutenants Cunningham and Cahoon), was sent to give some relief to a Philippine Army division fighting in the Cagayan Valley in northern Luzon.

## The March North

On the afternoon of December 12th, each troop of the regiment marched individually to a forest, midway between Fort Stotsenburg and Angeles, Pampanga. In getting to this place it was necessary to cross a considerable amount of open country. One troop, caught out in open terrain, was strafed by Jap planes but suffered no casualties, for the men were well dispersed and whenever a fighter started to dive, they galloped out of the area covered by its guns.

When Troop "A" moved across this open area, horsemen were sent ahead or to the flanks to observe from the tops of small hills, while certain other men in the troop were designated to watch the observers for aircraft signals. Where there were no hills and the ground on which the troop travelled was such that it caused the horses to make a lot of noise, two men were sent far enough in advance or to the flanks to be able to hear the approach of hostile planes. The principle precau-

U. S. Signal Corps Photo

**A unit of the 26th Cavalry is shown moving into Pozzorubio, December 21, 1941. The next day it faced the Japs.**

tion, if possible, was to have the men so well dispersed that if caught by surprise, the unit would not suffer unduly.

The regiment stayed in the woods between Fort Stotsenburg and Angeles, undiscovered for one or two days. Rifles and pistols were carried loaded and locked all of the time, and occasionally a man would accidentally discharge his piece. It was difficult at first to make the men conscious of the fact that their guns were always loaded.

At nightfall on the 13th or 14th the regiment marched through Angeles, Pampanga, north to the town of Bamban. There it remained for two or three days. The men gradually became accustomed to carrying their guns loaded and locked, and the problems of guns discharging accidentally practically stopped. The bombing and strafing no longer excited the men, who wanted to fire at the planes but were not allowed to for fear of giving away the position. General Wainwright's headquarters at that time was in Bamban, and I believe also that it was about then that Troop "F", having marched up from Manila, joined the regiment.

The night of December 16th, the regiment started marching to the north, and made camp north of Capas during the day of the 17th. That night the march north was again resumed and the town of Gerona was reached before daylight of the 18th. All day the troops lay in a coconut grove west of the town and, after starting north again at dark, arrived in Rosales, Pangasinan about 0300 the morning of the 19th (another 25 miles) and remained there for two days.

Jap planes were always present. No American planes had been seen for several days. Although security had always been posted night and day, both while marching and in bivouac, it was now strengthened, because reports were coming from the north that the Japs were pushing from Appari and Vegan—where they had made landings a week before.

There was no difficulty about supply; everything came from Fort Stotsenburg. The trucks did all of their moving at night. Hay and grain were dumped off the regimental supply trucks at the nearest place on the road to the troop area, and from that point were hauled by hand to the animals. The mess sergeant picked up the troop's food at the same place and transferred it to the kitchen truck. The horses were in fine shape, and at every stop the horseshoer was busy.

About that time General Wainwright moved his headquarters up to Sto. Tomas near Rosales.

At noon of the 21st at Rosales orders came to be ready to move out in half an hour with lunches and grain bags full. Few men got their noon meal that day, as the kitchen could not get lunches out on such short order. It had been a practice, however, to keep the grain bags always full. In half an hour troops were ready to move. Troop "C" was dismounted and sent north of Baguio by truck, and their animals were turned over to Troops "A" and "B" to be led. From Rosales the regiment marched west, then north along the Baguio highway until dark, and after covering about 20 miles, bivouacked in a coconut grove in the area of Pozorrubio, Pangasinan.

That night the horses had to be watered by bucket from a deep well. This took about two hours for "A" and "B" Troops using the same well. Troop "A" always carried one collapsable bucket per squad, and two, if they were available; also a trench shovel, and a lariat. This scheme proved very valuable many times.

The kitchen trucks did not get up until after midnight, but there were shovels to dig foxholes, and the horses had grain and enough grass to keep them going. The men, however, had nothing to eat. There had not

been time to put up lunches, and it was impracticable to keep sandwich lunches on hand, as they would have gone stale. There was plenty of room in the saddle bags for a box ration had any been available. The emergency was not sufficient to open the canned rations. Pack animals with rations would have been invaluable.

Saddle-up came long before dawn of the 22d and before the kitchen truck was ready with breakfast. Troop "C" horses were left in the bivouac. The day was cloudy—ideal for marching and also for retarding the activity of hostile planes.

At dawn the regiment was marching north through rolling country toward Sison, Pangasinan. It moved in the same strung-out formation along a paved road with barbed wire on both sides. A little after daylight a plane came flying low toward us down the column. The signal for air attack (waving the hat) came just ahead of the plane—so everybody was alert. By this time the troops had a good idea of what it would be like to be surprised by enemy strafers. The horses were quickly gotten into a ditch along the side of the road and the men hit the ground. The plane proved to be a friendly P-40 on reconnaissance, but the dash for the ditch had been good practice.

At about 0900 the troops reached the junction of the highway where the Kennon Road goes to Baguio and Highway 3 turns to Rosario, La Union. The sky was starting to clear. Jap planes were scouting overhead in all directions but had not attacked. The regiment halted and got off the road to rest, while a company of light tanks went on ahead. During the rest period, civilians opened coconuts and gave them to the troops. The march west toward Rosario was then resumed.

Far to the front, planes could be seen diving out of sight then coming up again, but nothing could be heard. At about 1100 the tail of the regiment came into Rosario, where the company of light tanks had also stopped. About a half hour later the regiment, with some of the tanks in the lead, headed for Damortis.

The order of march in the regiment changed to 1st Squadron, 2d Squadron. Regimental Headquarters had gone forward with the tanks. The 1st Squadron had a platoon of heavy machine guns attached and marched in the order Troop "B"—Machine Gun Platoon—Troop "A". The troops were still marching on a paved road with barbed wire on each side.

Just out of Rosario, the Japs started dive bombing and strafing all along the column, with the heaviest at the front. Platoon commanders were instructed to use their judgement as to when to disperse for air attack, but to keep closed up on the unit in front. Whenever planes were seen coming, as much distance as possible was taken between horses, and an effort was made to get the horses into the usual ditch beside the road. When planes got close, the scout car stopped and the crew fired on them with their .50 caliber machine guns, which at least kept the Japs higher in the air. One bomb that I judged to be a 50 pounder, landed within about 50 feet of some troopers, but because it drove deep into the ground the fragments flew at a high angle and inflicted no casualties. In strafing, the Jap guns had little dispersion and caused only slight damage or delay to the column. As soon as the planes had passed over, the troops mounted up and rode on.

Here and there along the road were bomb craters. In some places, telephone wires were down, but only twice did the column pass dead men or horses. Once, where a bomb had landed right in the middle of a cut in the road, there lay a man and two dead horses; and another time, a wounded soldier was sitting beside the road, his dead horse nearby.

Later, while assembling after having made a quick dash off the road to get away from a strafing attack, I noticed that my platoon sergeant was missing. Looking over, I saw him dismounted trying to get his horse out of a carabao wallow. The horse was up to his belly in it and could not move. I rode over with the idea of trying to find a way of getting the horse out, and suddenly realized that there was something more important to do, so got another horse for the sergeant, and the march was resumed.

About 1230 we came to a ridge from which Lingayan Gulf could be seen in the distance. The water was full of Jap ships and the scene brought a full realization of the urgent reason for the forced march from Rosario. There was no time for more than a fleeting glance at this scene, for a message from Regimental Headquarters ordered the troop to move forward at once and in a hurry.

Marching in the order 1st Platoon, 2d Platoon and Light Machine Gun Platoon, the troop moved along the road at the trot. The 2d and Light Machine Gun Platoons were driven off the road several times by heavy dive bombing and consequently lost distance, but the troop commander and 1st Platoon were able to continue forward without this interruption.

### Battle in the Lingayan Hills

At about 1300 the 2d Platoon and Light Machine Gun Platoon arrived at the forward regimental CP, which consisted of a scout car with radio. A few staff officers were standing nearby. The squadron adjutant told me to join the troop commander who was in a valley beyond the next hill to the north. We moved over the hill and down into the valley and located the troop commander on a ridge three or four hundred yards to the northwest. As soon as he saw us, he signalled for the platoons to fight on foot. The 1st Platoon had left its horses mobile, with one man to four horses; so the newly arrived platoons did likewise.

In the bottom of the valley, where the troop dismounted, there was a rice paddy which had been recently harvested, and it was now a hard broken field covered with rice stubble. A stream bed running down the center of the field had a growth of cogan grass in it 10 feet high, and as many horses as possible were

hidden there. The rest were put under cover here and there, where clumps of small trees could be found.

The two platoons assembled in column of trooper and moved up under cover behind the brow of the hill where the troop commander was waiting. A few of the men had taken their canteens off their saddles and hooked them to their belts by use of the chain that attaches the cover. Those of us who did not do this, sorely regretted it. All of us were tired, hungry and especially hot, and few realized what was really happening. Planes were still at work but not on the troop at that moment.

The 1st Platoon was already in position on the hill. The Light Machine Gun Platoon was ordered into position with them. The 2d Platoon was ordered to send one squad of riflemen mounted to the high ground to the east to cover any hostile movement attempting to get in our flank and rear. The other squad of the 2d Platoon was sent dismounted to occupy a ridge just east of the right flank of the 1st Platoon position. Two heavy machine guns attached to the troop also occupied this ridge. I was placed in command of this section and given instructions to keep in contact with the mounted patrol on our right flank to the east.

The troop commander's CP was on the ridge occupied by the 1st Platoon and overlooking Lingayan Gulf and the vicinity of Damortis. This ridge, which ran north and south parallel to the shore of the gulf, was ½ to ¾ of a mile long, forming a cut for the highway on the west, and petering out into a gully on the north. A short distance from the northern end of the main ridge, a narrower ridge of about the same elevation ran perpendicular to it. This furnished a fair field of fire for 1000 yards to the north toward another group of hills.

The shore of the gulf was about 1½ miles away. From the shore in, for about ¾ of a mile, the land was level. From this plain to the 1st Platoon's position, there was a gradual rolling rise made up of billowing hills covered with cogan grass. Lingayan Gulf seemed choked with Jap warships and transports. There was a heavy haze in the air, and the sun was already low enough in the west to make seeing in that direction very difficult. We watched the Jap landing barges bringing men and supplies ashore, but could do nothing to stop them.

On the Rosario-Damortis highway to the south of our position, there was a company of American tanks. Farther back on the road to the rear of the tanks were two or three scout cars that from the first were using their .50 caliber machine guns for antiaircraft fire. The Jap dive-bombers were busy trying to get something on the road—either the tanks, the regimental CP, or the scout cars. Somewhere on our left was Troop "B", but I was never able to locate it.

After checking my position, I started over to the right flank of the ridge occupied by the 1st Platoon to have a better look at the ground. Just before I reached the position of the light machine guns, I heard a high pitched cracking sound over me and stopped to look up in the air but saw nothing. The sound was repeated and at first it was hard to figure what it was. Soon I saw one of our light machine guns moving back toward me with the men carrying it crouching low. Then it dawned on me that the cracking sound was the same as that heard in the rifle pits. It was the Jap machine guns firing on our gun position, and they had gotten so close that our gun crew had been forced to move into another position.

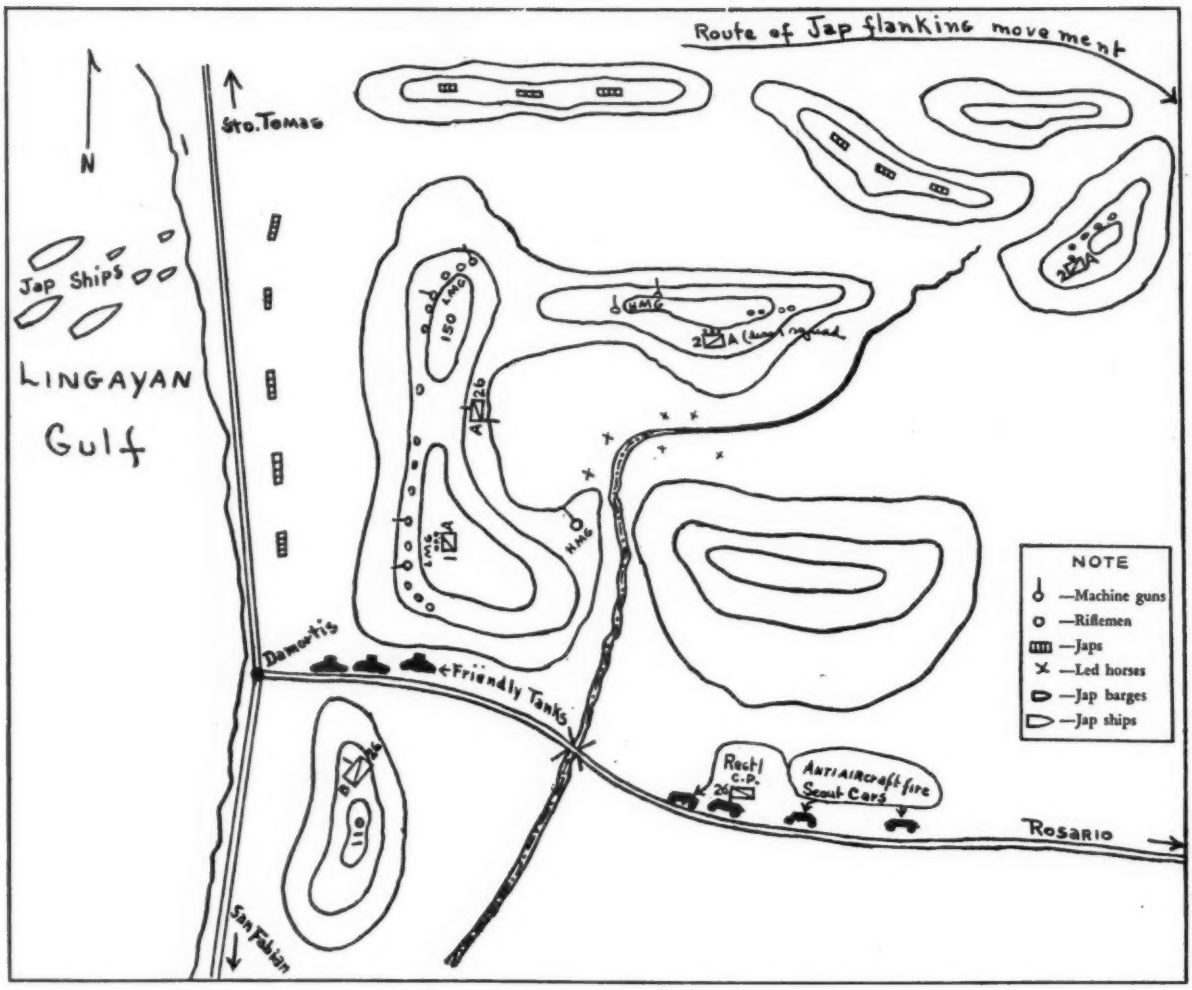
Two or three hundred yards beyond, on a hill to the north of the 1st Platoon's right flank, helmets and sometimes the heads and shoulders of Japs could be seen moving behind the crest. The men of the light machine gun crew were on their stomachs helping each other guess where the next figure would pop up on the ridge to their front.

Returning to the position assigned to me, I found that the men there had also been confused at first by the cracking sound overhead. The air was full of bullets now. Objects on the ridge north of my position were our targets. The firing on the right flank started about 1400. The center of the ridge occupied by the 1st Platoon came under fire from what we presumed to be 75mm from the valley.

Slowly Jap artillery fire covered the whole position. Then Jap tanks, firing their small cannon, began to appear. Moving in column of squads Jap infantry moved up with the tanks and soon had machine guns covering the 1st Platoon's position. I believe that they received a little mortar fire too. A short time later Japs, who had worked around and gotten into a position with rifles and machine guns, began firing directly from the ridge to the north. From time to time squads of Japs in columns of troopers came over the ridge nearly a thousand yards in front of our heavy machine guns and scrambled down into the gully where they were protected. The heavies took good toll of these, but the Japs kept coming. Those approaching our main position facing Lingayan Gulf stopped when about half a mile away.

Watching the firing of the heavy machine guns was engrossing. The first man to see a target would try to show it to the gunner. If the gunner was unable to find it, the man who saw it would aim the gun, then the gunner would do the firing. Realizing that there was something else to do other than watch two guns, I crawled back to where the squad of riflemen had been put in position and found them behind the crest of the hill lying prone doing nothing. The corporal told me that he did not know where he was to get into position. After the men had been put into a firing position in front of where they had been lying they started firing and stayed there without any trouble throughout the rest of the action.

Far to our right and rear, artillery could be heard now and then. I believe that this was about 1530. The squad of mounted men (2d Platoon) had been sent to that locality but up to now no word had been received from




them. For the first time I needed my messenger but looking around I found that it was impossible to locate him anywhere. Finally it was necessary to take one of the riflemen out of the line and send him to contact this squad.

In spite of the heavy toll taken by the machine guns, several squads of Japs had managed to get over the ridge and down into the gully about 700 yards in front of our position, at which point they completely disappeared from view.

I crawled down to the troop commander's CP to inform him of what was going on in my area but was unable to locate him. The infantry had stopped advancing on the position facing Lingayan Gulf. There the light machine guns and riflemen had a field of fire over the short cogan grass for two to three hundred yards, but Jap artillery fire now covered the whole of the troop's position. Their tanks made no effort to advance.

Jap planes were overhead most of the time, but as far as I know, our troop received no casualties from them. The .50 caliber machine guns on the scout cars had been firing nearly incessantly since 1300.

Returning to my area, I found one of the heavy machine gunners firing on the planes. The gunner had been told specifically that the machine guns would not be used for antiaircraft fire, as we were short on ammunition. It was necessary to pull this man away from the gun, set the gun to cover its ground area, then shove him in back of the gun. Still he kept looking up at the planes.

Crawling back to the rifle squad, I verified that they were still in position firing. Then returning to the machine guns, I found that the one gun was firing antiaircraft again. It was not that the gunner was deliberately disobeying. I believe that the idea of those planes always overhead had preyed on his mind to the extent that he could not think of anything else. From time to time he would point at the streams of smoke that our .50 caliber tracers were making and say that the Japs were dropping gas. I then put the assistant gunner to firing.

In contrast to the gunner mentioned above there is a story of another gunner. On one of our light machine guns, the gunner and assistant gunner were cousins. The gunner in the course of the afternoon was hit in the chest. He fell away from the gun and rolled down the hill a little ways. The assistant gunner, calmly, without giving his cousin a look or a thought, immedi-

ately got into position behind the gun and continued firing.

About 1600, squads of Japs were noticed 1½ miles to our right rear working toward our rear. They could be seen for just a few seconds at a time as they passed in squad columns over a piece of high ground. For how long this had been going on, we did not know. The troop had no reserve. The squadron commander came up, looked the situation over, and ordered us to pull out and move to another position.

The horses were in the valley to our rear. South of the valley there was more high ground which overlooked our position. The two heavy machine guns and rifle squad were ordered to this hill to cover the withdrawal of the rest of the troop.

One heavy machine gun was withdrawn immediately from action, and the route to and exact locality of the next gun position was carefully explained to the gun crew. The new position could be seen plainly. The gun and crew were then sent back to occupy the new position. The corporal of the rifle squad was instructed to stay in his present position for 10 minutes after the second machine gun pulled out, and then to withdraw his squad and rejoin the machine guns at a point carefully pointed out to him. The next position was not more than a quarter of a mile away.

After the first gun had had ample time to get in position, yet still could not be seen, I started back with the second gun. In a few minutes the second gun was in its position, but the first gun and its crew could not be located. I later learned that on seeing the troop pulling out of the position in front, the crew had taken it on themselves to pack the gun and to take it to the place where the troop was assembling. The rifle squad also never got to its second position. Later the corporal said that he had believed it was necessary to get the horses out then, or they would have been lost.

The one heavy machine gun left to fire, had too much to do because it had an area of over 90° from northwest to northeast to cover. After each burst was fired it was necessary to traverse 90° to fire on some enemy movement in another direction. During the hour that it took to get the troop out of action, checked over, and back on the road mounted, the heavy machine gun kept up an incessant fire.

Toward the last of the withdrawal, the Japs had worked up into positions overlooking our movement and had a good amount of small arms fire on us, but it was mostly ineffective—either because they could not shoot or because the machine gun was keeping them down. In some manner, the pack horse and mounts of the machine gun and crew in the second position had disappeared. The gun was finally withdrawn and carried to a scout car waiting on the road. At the last, the Japs apparently knew that we were withdrawing, and they began pushing forward with increased determination.

Troop "A" marched about three miles back to a river to water the horses, which had all been fed during the action. The Jap planes had stopped their dive-bombing and strafing, but scouting planes were still overhead most of the time. A company of light tanks was still between Troop "A" and the enemy.

After watering, the troop marched a half mile back toward the enemy and dispersed in cover along the road. Half of Troop "A" was missing, and most of its ammunition was gone. The platoon sergeant who had been sent with the squad to protect our right flank was the only one of the squad who had returned; his face was caked with blood from a shell wound. The squad had met a large force of Japs sent around on an enveloping movement, and although it had held the Japs up for some time, it was finally wiped out by fire from mortar and mountain artillery. (No one from that squad was ever sent to notify the troop commander that contact had been made. I never heard what happened to the man sent to contact the squad nor did I ever find out where my messenger went.)

About 1750 the troop was ordered into a position 1½-2 miles to the rear of our first position of the afternoon. At the time Troop "E" was astride the road, and Troop "A" was off the road to the right of Troop "E". Just after dark the company of tanks withdrew through us and passed on to the rear. About 1930 Troop "A" pulled out and in columns of twos dismounted formed on the road facing east. Beyond Troop "A" was Machine Gun Troop mounted, and we were told that beyond the Machine Gun Troop was Troop "E" forming the rear guard for the withdrawal. The heaviest weapon that they had was a light machine gun, and there had been no time to build any kind of road blocks. (If the troops had had something like the bazooka, the action that followed possibly never would have happened!)

At about 2000 Troop "A" was still waiting for the order to mount and withdraw to its new position when all hell broke loose suddenly. Small cannon, machine gun, and rifle fire came over and into us. Machine Gun Troop, already mounted, stampeded through us, which caused several Troop "A" men to lose their horses. Those who still had mounts, had trouble getting the reins over their heads and then in mounting. As the firing became stronger, the horses got crazier. Jap tanks followed by infantry had come right through our rear guard. The rear guard had had nothing heavy enough to stop them.

In mounting, my horse bolted—dragging me for some distance and knocking me out. Later, when I came to, the firing had stopped, forms could be seen moving down the road from the direction of the enemy, and there were no cavalrymen around. I jumped a fence and got into a bamboo thicket by the side of the road.

* * *

*A further account of Major Whitehead's experiences in the Philippines will appear in the July-August issue of* The Cavalry Journal.

# ABC's of Jungle C

**"Dig in whenever halted and improve holes as time permits." This machine-gun emplacement on Guadalcanal offers concealment as well as necessary protection.**

Official U. S. Marine Corps Photo

SINCE the early days of the war with Japan, a great deal has been learned about the Jap soldier—his characteristics, weapons, and tactics; also about tropics and jungles in which much of the war is being fought.

The Jap is a master of camouflage. He is meticulous in his task, whether it be concealing a supply dump from planes or emplacing a machine gun along a narrow jungle trail. Obeying orders blindly, he will stick to his post until death. But while he is supposed to excel in judo and bayonet work, his inferior physique handicaps him in hand-to-hand combat with the American. He is a poor shot, compared with the American soldier, and at ranges of more than 100 yards the Jap sniper misses more often than he hits.

The American soldier is now provided with the world's best weapons and equipment, but to a great extent, jungle fighting is a test of individual skill. Before the American soldier goes into action, before he even sets foot in the jungle battle zone, he must receive intensive training in jungle warfare. It is only with this careful training and constant study, that he can take full measure of the Jap.

The following basic but vital rules, which were evolved from combat experience with the Japs in the South Pacific, should be learned so thoroughly as to become an instinctive and integral part of every soldier who is training for the jungle.

## Rules for the Individual Soldier

*Your Enemy and You.*

Do not underestimate the enemy, but also do not overestimate him. The Japs are not supermen, but they are fanatics. Remember, this war with the Japanese is a war of *kill* or *get killed*. You are a better man, better armed and a superior marksman.

*Teamwork.*

There are no wet-nurses in action. Learn the difference between a hero and a fool; the former has common sense as well as courage. Do not try to win the war single-handed. Use teamwork, live, and be successful.

*Lights and Smoking.*

No lights of any kind will be used in forward positions during hours of darkness, and *No Smoking* unless specifically authorized by higher headquarters.

*Talk.*

Silence is essential at the front and on patrol. If the enemy cannot locate you, every advantage is with you. He will try every means to get you to disclose your position so that he can gain advantage over you.

Talk only in as low a tone as possible. Practice whispering, especially in telephone conversations. Use signals, such as hand or arm signals, tapping on the rifle, bird calls, etc., as much as possible. Do not expose

# e Combat

## *Basic but vital rules evolved from combat experience with the Japs*

yourself any more than necessary when using hand or arm signals.

Do not forget that many Japanese speak English. At night a favorite trick is for them to infiltrate and yell false orders, such as, "Withdraw," or "Sergeant, where are you?" Learn to know the voice of your leader. Japanese have difficulty in pronouncing the letter "l."

*Firearms*

Weapons will be carried at all times when in forward areas and when away from immediate vicinity of bivouac, camps, or secured areas. *Weapons will always be kept readily available.* Don't shoot unless you have something worthwhile to shoot at. Blind shooting simply gives away your location.

*Enemy Fire.*

Under artillery, mortar, grenade or bomb bursts, keep dispersed and hold your ground. Running from one burst and collecting in groups only invites disaster. Two shells in the same hole are so rare that the safest thing to do is to move forward or else take shelter temporarily in a shell hole. Running from fire will not save you and will have a demoralizing effect on other troops not involved. It gives a boost to the enemy's morale to see you run.

Japanese light mortar fire is accurate; therefore, grouping of personnel must be strictly avoided, and individuals will not allow themselves to be silhouetted on the skyline.

*Caution.*

Do not use field glasses openly; observe the same principles as in firing the rifle from concealment.

Do not permit straggling, and do not straggle yourself.

Dig in whenever halted and improve holes as time permits. An entrenching tool is next in value to a soldier's personal arms and must be carried at all times.

*Sniping.*

When fired on by snipers move at top speed to nearest cover or concealment. As soon as possible quietly change your location, then locate and destroy the sniper. Do not, under any circumstances, stand still in the open. Do not forget to look up before you move. Get into the habit of watching tops of trees as well as their roots.

Official U. S. Marine Corps Photo

**"Remember, this war with the Japanese is a war of *kill* or *get killed.* You are a better man, better armed, and a superior marksman." From behind a blasted tree, this marine picks off the Japs in a pillbox on Tarawa. The target is the small opening through which the Japs take sight.**

*Enemy Tricks.*

Be on guard for all types of booby traps and other enemy ruses.

Do not attempt to retrieve enemy wounded. (It may be a trick).

Look out for false surrender; any offer of surrender must be suspected as an enemy ruse.

*First Aid.*

Use your first aid packet. Scratches must be treated as soon as possible. If wounded, take your sulfanilimide tablets as directed on the metal package.

*Rumors.*

Rumors are a curse, don't start them or believe them. All rumors are false exaggerations; therefore, discount them, and wait for verification.

### The Leader

*The Officer.*

It is imperative for morale that every officer maintain a cheerful and optimistic attitude, and that he not show by word or action any discouragement or evidence of fatigue. Every officer must exhibit a desire for aggressive offensive combat, and instill the same desires in his men.

*Small Unit Leader.*

Each platoon leader or other small unit leader, will

*Life* Photo by Shrout

**"Do not attempt to retrieve enemy wounded. It may be a trick." The Jap in the above picture appears to be dead. If he is, the body may hide a booby trap. Take no chances.**

take every opportunity to instruct, talk over, discuss and re-discuss with his men, Japanese tactics, our methods of operating against them, and work out in detail the methods his unit will employ to get teamwork into their day and night operations against the enemy. It is essential that officers and men know and understand each other thoroughly.

### Security

*All Around Defense.*

Movement formations will be adapted to the terrain, but must always provide *all around security by forward scouts, and flank, advance and rear guards with connecting groups.* During a halt, whether for rest, observation or bivouac, men will be kept dispersed and quiet, with alert sentinels and adequate security guards maintained. Remember you are always under observation and subject to machine gun or mortar fire if you present a suitable target.

*All around defense is imperative and must be habitual. Do not move without all around security, and when you halt make that your first job.*

*Sentries.*

Sentries operate in pairs—one alert, while the other sleeps. There should be no relief or movements during the hours of darkness. It is usually best to have individuals dig in or have positions in pairs.

### Patrols

*Size.*

Always send at least two men on missions, however simple the task may appear.

Do not send a boy to do a man's job. Patrols will usually be assigned strengths as follows:

(1) Information only: a very small patrol, usually three to six men.

(2) Combat or reconnaissance in force: never less than a reinforced platoon, preferably larger.

*Inspection.*

Each patrol will be inspected carefully, and clearcut instructions will be issued to cover mission, objective, route or routes, adjoining patrols, formations, precautions, password, and signals. Helmets and web equipment will be camouflaged; canteen and other shining equipment will be covered. All equipment must be adjusted so that it does not rattle or shine. Other headgear may be substituted for the steel helmet *only* on orders from the regimental or separate unit commander.

*Rest Periods.*

Before the patrol moves out the leader will establish a definite rest period during the time of the march, so that whenever there is a halt the men will know how much time they have to rest.

*Maps.*

Patrols will be provided with maps or sketches devoid of any military information. New trails and information of similar military value should be recorded on the spot and reports made immediately upon return to bivouac, and copies sent to division headquarters.

*Equipment.*

Patrols will travel as lightly as possible, only the barest essentials being carried. (See par. 8 a., Individual Equipment, as a guide which can be modified according to requirements.)

*Movement.*

When a patrol is on the move and obstacles slow up the pace, the leading element, with front and flanks covered, must clear the obstacles promptly, then slow down in order for the rear element likewise to clear the obstacles. After the rear element is cleared the normal pace is then resumed.

Do not attempt to move too early or too rapidly. Make a *thorough* reconnaissance. Remember that false negative information is the most dangerous type. Commanders must estimate the time-factor and limit the extent of the patrol accordingly.

*Caution.*

Needless talk must be strictly eliminated. Make as little noise in traversing wooded areas as possible.

Never permit a patrol to bunch up.

Never halt in the open—select a concealed spot which affords cover and protection—except where such opening affords night security.

### Special Rules for Night Operations

*Hostile Attack.*

Assign definite fields of fire to front line units for use in event of a coördinated night attack.

Night movement within the perimeter of defense must be held to the absolute minimum necessary to take care of casualties, etc. No movement will be permitted during a hostile attack.

*Hearing.*

For identification use the prescribed password. When challenging or replying to a challenge, *speak quietly*. Remember, the enemy also has ears.

Warn all personnel about the natural jungle noises, such as falling leaves, and the numerous birds calling at night.

*Seeing.*

Cover luminous watches or other objects that will shine at night.

Use flares at night to expose enemy movements and positions.

Tracer ammunition will not be used at night except in antiaircraft firing or for prearranged signalling.

*Lost.*

Individuals, or units, that are lost when night falls should select a covered position and, after establishing a perimeter of defense, remain for the night.

### Attack

*Bivouac.*

Troops designated for attack should be bivouacked for the night as near the line of departure as possible in order to insure maximum rest prior to the assault.

*Battalion CP.*

Each battalion headquarters, and regimental headquarters will have at the forward echelon only those members of the staff and headquarters company essential to combat functioning. One practical working arrangement is to have only the following personnel at the forward CP: CO, Bn-X, Bn-2, Bn-3, forward echelon of message center and intelligence section, five linemen, and such radio operators as condition of radio communications warrants.

*Weapons.*

Each machine gun or mortar platoon may be cut from six to four guns during attack in order to allow more men for use as ammunition carriers. If necessary the heavy weapons company should carry only four 81mm mortars and permit the extra men to carry ammunition.

*Thorough consideration must be given to the possibilities of employing all supporting weapons and services available.* Experience has shown that the Japanese machine gun and other weapons are so well emplaced that close heavy weapon support is necessary whenever the terrain permits.

*Advance.*

In attack through the jungle, advance slowly but surely. Do not rush in, then stop or fall back. *Once forward movement has begun, every effort must be made to continue that movement however slow it may be.*

Whenever you have located the approximate position of the enemy, flush him from his foxholes and have action for his elimination prepared.

### Battle Supply and Administration

*The Communications and Supply Line.*

Each unit is responsible for its own line of communication and supply, and should advance only so far as it can secure its line of communication. Exception may be made when the seizing of the objective will uncover a new line of communication, or when relieved of responsibility by higher headquarters.

*Difficulties of Supply.*

The difficulty of supply in jungle operations requires special consideration prior to any offensive action. *The decision as to the routes of attack may have to be based on the supply route possibilities.*

*Trails.*

Push forward vehicular trails for carrying supplies as

Official U. S. Marine Corps Photo

**"Once forward movement has begun, every effort must be made to continue that movement, however slow it may be." Marines in the picture leave the beachhead on Tarawa to storm the airport.**

far as possible. A bulldozer will greatly facilitate rapid trail construction. Infantry protection *must* be furnished for all bulldozer crews working in the forward combat areas. Native carriers will be used to the maximum extent available. Even so, experience indicates that about one-fifth of the fighting force of each battalion may have to be employed as carrying parties to maintain the supply of ammunition, food, and water, and to handle the evacuation of casualties. This number should be kept at the minimum, and as soon as carrying parties are no longer needed they must be returned to the front.

*Travel Light.*

*All excess personnel and organizational equipment not absolutely necessary for combat must be left in the rear battalion assembly area to help prevent fatiguing the troops and to increase their mobility.*

*Engineer Support.*

Engineers, and all other units, will improvise cable lines, blocks and tackles and other gear for hauling supplies and casualties up and down hills, cliffs, etc. They must be ready before you go into combat.

The battalion S-4 must always be alert to locate and establish water points at streams, springs, etc. in the forward areas and provide sterilization and thereby save on long water hauls.

*Administration.*

The battalion executive officer will normally remain at the CP and advance it to predetermined localities as the attack progresses. It is most important that the executive officer closely supervise the "administrative" support given the attack. He must constantly check both supply and evacuation.

### Signal Communication

*Wire Communication.*

Maximum use will be made of wire communication, especially sound power telephones, in preference to radio. Telegraph will be employed whenever operators and equipment are available. In damp jungle country a ground return circuit is often more efficient than a metallic circuit using assault wire. Captured Jap wire can be used to supplement the supply of assault wire using ground return.

*Laying and Repairing Lines.*

Lines will be repaired in daylight only, except in emergency. In laying lines, install one by the fastest route, then a second on the return trip by a different route, raised high enough to be clear of traffic. Wire will be recovered after need for lines has passed. Wire crews in exposed forward areas will be protected by guards while at work.

*Testing and Supply.*

Testing of signal equipment, and checking for completeness of accessories must be made daily and especially prior to departure of any parties depending on such equipment.

Spare dry batteries and adequate supplies of field telephone wire should be moved up to forward areas.

*Air-Ground Communication.*

Be familiar with visual and sound signals given in SOI for identification and challenge between unidentified ground units and airplanes.

To mark targets for supporting aircraft, use mortar smoke shells and arrows composed of panels as shown in SOI.

### Individual Equipment

Individual equipment carried into combat in attack situations will include only absolutely essential items. Excess items hasten fatigue and lessen the mobility and fighting efficiency of attacking troops. Individual equipment will include:

*Equipment.*

Individual weapon.

Ammunition. (Extra bandoleers will not be carried by combat troops except for assault echelons during initial landings on hostile shores.)

Cleaning gear for weapons carried in oil and thong cases, BAR spare parts kit, or extra first aid pouch.

First aid packet. Entrenching tool.

Two canteens and canteen cup. Steel helmet.

Gloves. Head net.

*Combat Pack.*

Shelter half. Pair of socks.

Mess kit cover and spoon. Toothbrush and paste.

Shaving equipment. Toilet paper.

Dry rations (sufficient for 1 or 2 days or as ordered).

**"Always send at least two men on missions, however simple the task may be." Here, two soldiers watch the grass for any sign of movement. One soldier is behind tree.**

*Life* Photo by Strock

Cake of soap.
Jungle medical kit (per each four men).

*Extra Pack.*

An extra shelter half will be issued to all troops for the purpose of preparing a pack containing the following:

1 Suit HBT. 2 Pair socks. 1 Suit underwear.
1 Pair shoes (Shoes will be placed inside of pack to be kept dry.)
1 Mess kit less cover. 1 Each knife and fork.

*Transport.*

These packs will be stored in battalion rear areas. In landing on hostile shores assault echelons will drop packs prior to debarkation; the support echelon will drop packs ashore. Jungle hammocks will be carried as company or battery baggage and will be held in battalion or regimental rear areas until such time as they can be used.

*Life* Photo by Strock

**"Do not forget to look up before you move. Get into the habit of watching tops of trees as well as their roots." A soldier looks for signs of movement in a near-by tree.**

*Care.*

Care of equipment will be enforced strictly. Do not let men get separated from their equipment. Unit leaders must require daily care of equipment.

Darken any equipment to make it blend with tropical green, and dull items that might glisten or reflect light. Cover the canteen with a sock or cloth.

Units must never leave equipment and supplies unguarded, even in rear areas.

## Sanitation

Since disease is ever likely, it is imperative that every individual comply with the strict rules of sanitation.

*Refuse.*

Straddle trenches will be prepared whenever practicable. When not practicable, individuals will dig a small hole and cover defecation.

Foxholes and other positions will be kept free of refuse.

All food cans and left-over food will be buried.

*Cleanliness.*

Troops will be given every possible opportunity to bathe.

Bedding will be sunned and aired whenever possible.

*Clothing.*

Head nets will be worn at night unless the tactical situation prevents it. Clothing will be worn to cover the body and limbs between dusk and dawn. Gloves should be worn when appropriate.

*Feet.*

Special attention will be given to care of the feet to prevent blisters and "athletes' foot." Treat blisters and sores at first opportunity.

*Mess Kits.*

Diarrhea and dysentery can often be caused by dirty mess kits. Mess equipment will be washed and cleansed thoroughly in boiling water before each meal. Two men per platoon should be detailed to wash all mess kits. In some situations mess equipment may be taken to the rear with the mess detail, boiled, and returned with the next meal.

These rules are merely the beginning—the ABC's of jungle combat—but their conscientious application will save lives and shorten the war.

*Life* Photo by Shrout

**"Use your first-aid packet. . . . If wounded, take your sulfanilimide tablets as directed on the metal package." Here, first aid is being administered to a wounded buddy.**

# 1st Cavalry Division Drives

Acme

Troops of the 1st Cavalry Division wait off shore while Navy guns pour shells on Los Negros and planes drop explosives in the preinvasion softening.

As the first landing boats hit sh alrym the jungle. Jap hut at left was dama ring t

Acme

The landing on Los Negros successfully completed, cavalrymen dig foxholes and gun positions beside the wrecked supply dumps of the conquered Japs.

These troops are bivouacked in ains trees were smashed and broken dur terri

# es Japs from Admiralties

Acme

sh alrymen tumble out and head for
amag ing the heavy naval bombardment.

Acme

Additional waves follow in quick succession. Japs attempted little resistance at shore, dug in to protect Momote airfield, which fell after severe fighting.

Acme

in ains of a coconut plantation. The
n dur terrific air and sea bombardment.

Press Association

Lt. Gen. Walter Kreuger (left), Sixth Army; Maj. Gen. Innis P. Swift (right), 1st Cav. Div.; and Brig. Gen. Wm. Chase (center) were directly responsible.

# Offensive Operations of S

SOVIET cavalry, in coöperation with other arms of the service, has given a good account itself in the course of the Red Army's offensive operations. Cavalry showed itself capable of carrying out battle missions of all types. In this respect, the recent encirclement and liquidation of large German forces in the area of Korsun-Shevchenkovsky was particularly revealing.

In that operation, cavalry was primarily used for deep thrusts. The principle that it followed was to engage the enemy for as far as possible inside his dispositions. Whenever tanks and infantry got stuck because of snow storms and road conditions, mounted troops went into action.

In the battle for Korsun-Shevchenkovsky, outstanding maneuvering skill was shown by cavalry formation guards. The units executed several deep thrusts of from thirty to seventy kilometers each. For the sake of speed, the troopers rode not only at night but during the day as well.

### Maneuver

The first movement of Soviet cavalry, from the villages Ositnyazhka and Tishkovka to the villages Topilno and Zelenaya-Dubrava, deserves special attention. One division, which, according to the original plan was to reach the last named points, was unexpectedly confronted by an enemy force pushing southward, and was obliged, therefore, to meet German troops attacking from outside the ring in an effort to relieve the encircled group. Another Soviet cavalry division that was following the first one overtook it and completed the encircling maneuver.

Efficient control and good staff work contributed to the flexibility and speed of the movements executed by the cavalry. The following episode is typical in this respect. Part of a cavalry formation set out to attack the village of Shanderovka. Meanwhile, information was received that the Germans were moving between the villages of Khilki and Komarovka. It was necessary to wheel the regiments immediately in order that they might have time to cut the roads for which the Germans were heading. This change in direction was carried out in exactly thirty minutes. *The mobility of the mounted troops made every maneuevr swift and unexpected.* No matter how hard the Germans tried, they could not avoid encountering cavalrymen. The enemy was constantly forestalled in his attempts to break out of the encirclement.

### Coöperation With Other Arms

As to coöperation between cavalry and other arms of the service, the movement of mounted troops behind the tanks deserves special attention. In the Komarovka action, tanks reached the southern outskirts of the village

**Colonel General Rotmistrov (right) and Lt. General Kurkin, commanders of tank forces participating in the encirclement of German forces at Korsun-Shevchenkovsky.**

Sovfoto Radiophoto

**Soviet cavalrymen survey German war equipment wrecked and abandoned in the vicinity of the village of Shanderovka, where heavy fighting took place between the Red Army and the German divisions surrounded in the Korsun "pocket."**

Sovfoto Radiophoto

# Soviet Cavalry*

by Major B. Korolyev

**In the Battle of Korsun-Shevchenkovsky, during the Soviet advance in the Ukraine, Red Army mobile forces encircled and annihilated 10 divisions and 1 brigade of Nazi armor and infantry.**

after neutralizing enemy firing points en route. Then dismounted cavalrymen broke into Komarovka immediately behind tanks, and, while the armored vehicles drove to the northern outskirts of the village, the dismounted troops began to clear its central part. This close tactical coöperation between cavalry and tanks was in evidence in a number of other engagements.

As to coöperation between cavalry and infantry, in case of a break-through, the main body of infantry usually enters the breach behind the mounted troops. In battle, however, infantry and cavalry fight side by side, because, as a rule, troopers attack the enemy in dismounted formations. *But at the first opportunity, the cavalrymen remount and maneuver about on the battlefield.*

### The Breach

It must be noted that Soviet cavalry, which like infantry is constantly accompanied by artillery, is now able to cope with tank attacks much more effectively. The Tishkovka action which took place during the initial phase of the break-through is particularly characteristic of this kind of action. It is a well known fact that under modern conditions it is rarely possible to form an ideal breach through which mobile troops can move. Too much time would be required to achieve complete neutralization of enemy firing points in the zone of the break-through or to attain a hundred percent guarantee against flank counterattacks. The consumption of so much time would likely result in complete failure of the whole operation. Entry of mobile troops into the breach always entails a certain degree of risk.

Sometimes in order to save time, it becomes necessary to hurl tanks and cavalry forward when there is no gateway in the area of the break-through but only channels of infiltration. In such cases, the situation may become extremely hazardous and much will depend on the individual courage and skill of the troops entering the breach. This is exactly what happened in the Tishkovka action. Tanks and part of the infantry had already moved through, and cavalrymen had to engage the enemy at the very bottleneck of the breach. One guards regiment fought heroically against German tanks and self-propelled guns, which were trying to close up the breach and cut off the Soviet troops already through.

It so happened that the regimental command post was isolated, both from the rear and from the cavalry squadrons out in front. The regimental commander de-

*By cable to The Cavalry Journal from War Department. U.S.S.R., Moscow.

**Above map shows general area of the Korsun-Shevchenkovsky battle. Extra large dots indicate localities mentioned in article. Shevchenkovsky is on the Dnepr River south of Dnepropetrovski. Korsun is to the northwest, south of Kiev. The fall of Odessa in April completed German rout in the Ukraine and sealed the fate of Germans in the Crimea.**

fended the command post with the help of a squadron under Guards Captain Ashkhunov. When the German tanks were pressing forward on all sides, the regimental commander said to Ashkhunov, "Tishkovka means everything for us. The counterattack must be beaten off."

"As long as I am alive and have at least one man at my disposal, the enemy shan't pass," answered the captain.

With the help of the artillery reserve and antitank rifles, some German armored vehicles were knocked out; others were pushed back. At the same time the regimental commander reëstablished communications with his squadrons and organized a powerful attack. After heavy fighting, Tishkovka was cleared, and enemy tanks in the regiment's rear were routed. Artillery, which always gives close support to cavalry, played no small part in the battle. Subsequently, Soviet cavalry engaged enemy tanks on several occasions dismounted and after repulsing their attacks, developed the offensive until the surrounded enemy divisions were entirely liquidated.

# MILITARY ART
## Of the Red Army

by Lieutenant General E. Shilovsky, Red Army

DURING the summer and autumn of 1941 the Red Army held and repulsed the heavy blows delivered by the German invaders, and fought on a huge front under extremely difficult conditions. A treacherous enemy had invaded the Soviet Union. His numerous troops, well trained and equipped with thousands of planes and tanks, plus the advantage of two years fighting experience in Europe, secured certain temporary successes.

The mobilization, concentration and deployment of modern armies requires time. Naturally, it follows that for a country with great expanses of territory, such as the Soviet Union, considerably more time is required for this purpose. That is why, at the outset of the war the first strategic echelons of the armed forces of the Soviet Union had to wage a bitter struggle against an enemy possessing overwhelming numerical superiority and consequently had to fall back deep into the interior of the country.

In the course of its withdrawal the Red Army in flicted heavy losses on the enemy in gruelling defensive operations and wore down and exhausted his forces. It is now universally recognized that no other army and no other country could have withstood the blows that the Red Army and the Soviet Union parried during the early months of the war. The Red Army fought back, mobilized its forces and by the winter of 1941-42, having mastered the art of waging modern warfare, wrested the initiative from the enemy.

### Battle of Moscow

In the great battle of Moscow the Red Army brilliantly displayed the characteristic features of its military art of this period. From the standpoint of maneuver and mobility the Germans had at that time the advantage over the Red Army. Superiority in equipment likewise lay with the enemy. For example, the Germans had two and a half times the number of tanks that were at the disposal of the Red Army. Yet the Red Army smashed the Germans at Moscow, and, what is more, smashed them in a difficult and complicated battle of maneuver in exactly that pincer form of warfare of which the Germans prided themselves as being unexcelled masters. The Red Army, having bled and exhausted the enemy in defensive fighting, surprised him by suddenly launching a counteroffensive, in the course of which it routed both flanks of the shock groups with which the enemy had hoped to envelop the Soviet capital.

In the final analysis, the outcome of the battle of Moscow was decided *by the armies held in reserve.* The Supreme Commander-in-Chief, Marshal Stalin, displayed remarkable strategic courage and foresight. On Stalin's instructions, these armies had been formed in good time and concentrated behind the lines on both wings of the front. They were brought into action at the decisive moment of the battle, under the very walls of Moscow, exactly at the time when the Germans, having thrown all of their forces into the line, were getting ready to celebrate their victory. The German attempt to realize a "Cannae" at Moscow ended in utter defeat.

It is a well known fact that the change from defensive fighting and withdrawal to a counteroffensive on a large scale constitutes a most difficult and highly complicated military operation. It is an operation that makes exceptionally heavy calls on the moral fiber and valor of the men engaged in the action and demands high quality leadership on the part of the officers leading and directing the troops. Operations of this nature approach the very peak of the Art of Warfare.

In the course of the war the Red Army was tempered and strengthened by experience. Its organization was improved, and its equipment increased in abundant quantities.

### Battle of Stalingrad

The military art of the Red Army reached greater heights, whereas that of the enemy declined, as may be seen from the example of the Stalingrad operation. At Stalingrad the Red Army did not have an all around superiority of forces, but because of its skilful maneuvering it succeeded in securing decisive superiority on the main sectors. From the point of view of risk and profound ideas based on a sober calculation of all the circumstances of the situation, the operational plan at Stalingrad represents a brilliant achievement. The

choice of the right moment for the going over from the defensive to the offensive and the skilful selection of definite sectors for the main blows against the German flanks guaranteed the success of the entire operation at Stalingrad.

The smashing of the enemy troops on the north and south and the encirclement of the main German forces around the city was accomplished with remarkable speed—a total of five days. Officers and men of the Red Army displayed qualities of high tactical and operational skill. Combined blows by artillery and infantry shattered the enemy's front. Mobile forces, often separated by considerable distances from their own infantry, operated boldly and with great success in the depths of the enemy's defenses. Big changes had taken place in the strength and composition of the mobile formations. They had become more powerful and were equipped with far more tanks than was the case at the time of the Moscow operation. The encirclement of the tactical and operational groupings of the enemy was completed quickly and effectively and ended in the utter rout of the trapped Germans.

Stalingrad was distinguished by a two and even threefold increase in the tempo of the operations. Instead of fighting on definite lines as was frequently the case during the Moscow operation the Stalingrad battle was distinguished by fighting in depth and by flexible maneuver.

### Battle of Kursk

A feature of the 3rd year of the war, beginning in the summer of 1943, was the inability of the Germans to embark on an offensive on a wide front. Nevertheless for their July offensive in the Kursk salient the Germans concentrated on a comparatively narrow sector 17 tank divisions and 18 infantry and 3 motorized divisions. This was indeed a powerfully concentrated blow. However, the first round of the battle showed that, notwithstanding the immense quantities of manpower and equipment employed by the enemy, the Soviet defense was stronger than German offensive might. At the price of huge losses the Germans succeeded in penetrating only a few kilometers.

Having bled and exhausted the enemy, the Soviet troops attacked and, after throwing the enemy back to his original lines, began to move forward. As a result, the summer offensive of the Germans was quickly and successfully liquidated. For the first time in the history of World War II the defense had proved so powerful, skilful and stubborn that it was able to defeat an offensive operation by the main forces of the German army without any loss of territory and with terrible losses for the Germans.

This remarkable strategic success was a victory of the first magnitude. Exercising an immediate and highly favorable influence on the general course of the war, it prevented Germany from going to the aid of Italy and contributed to the downfall of Mussolini.

### Advance from Orel and Belgorod to the Ukraine

Not only did the Soviet troops kill the German summer offensive. They followed up their success by launching decisive offensive operations.

Notwithstanding the boastful shouting of the Germans about the invulnerability of their defenses the Soviet offensive proved stronger than the German defense. The enemy defeats at Orel and Belgorod proved to be the forerunners of a series of Soviet victories. After heavy and bitter fighting the German resistance was smashed right along a thousand kilometers of front from the Smolensk gateway to the Azov coast.

The Donetz basin, the most important mining and industrial region of the country, was wrested from the enemy and the Ukranian territory on the left bank of the Dnepr was liberated. Smolensk was stormed and captured and Soviet troops crossed the borders of Belorussia.

In the south the important Black Sea port of Novorossisk was captured and the enemy thrown out of the Taman Peninsula. Clinging to the heels of the battered enemy, Soviet troops reached the Dnepr and forced it at a number of points. From the Kremenchug area Soviet troops then penetrated deep into the southern part of the Ukraine on the right bank of the Dnepr.

### Russian and German Strategy

It can be said that the military art of the Red Army has advanced in a steadily rising curve. Tempered in battle, it has gained in strength, perfected its methods, and received first-class arms and equipment in ever greater quantities. Stalin's brilliant strategy has acquired ever broader and firmer foundations. In the most difficult and critical moments of the battles at Moscow, Stalingrad, in the Kursk salient and elsewhere this strategy has secured a favorable transformation in the military operations, determined the right time and place for delivering the main blows, has seen to the creation and grouping of reserves, and has determined the victorious outcome of the fighting.

At the same time the war has shown up the defective strategy of the enemy. Hitler's gambling strategy drove the Germans to Moscow in 1941. Obsessed with the idea of winning by means of a sudden first blow, the Germans stretched their communications to the utmost, and at the decisive moment of the battle, the enemy troops found themselves without reserves. In 1942 this same gambling strategy drove the crack German troops into the Stalingrad "sack" and doomed them to their tragic fate. Instead of helping the German troops, the Hitlerite strategy frequently led them into situations which doomed them to defeat. Exactly the same thing was observed during the summer and autumn of 1943.

### Flexibility

This war has shown that no single recipe for victory can be used on any and every occasion. The Germans can and will be defeated by the employment of various

methods. The best method is that which answers the requirements of the given concrete circumstances and which can accelerate the destruction of the enemy.

The Red Army has already won a number of outstanding victories over the German invaders. In the future, too, it will successfully counterfoil its flexible tactics of maneuver to the stereotyped and text book narrow-mindedness of the Germans. The Red Army has beaten the Germans, and will beat them in the future, by the skill, originality and inventiveness of the Soviet military mind and by its rich operational and tactical combination.

# Combating German Counterattacks*

## by Colonel N. Dushak

IN combating Soviet attacking and pursuing units, Germans often resort to counterthrusts. Generally they mass strong forces on a narrow sector and strive to forestall encirclement or liberate already surrounded garrisons or groupings. In both instances the Germans, employing masses of tanks, have made fierce counterattacks in an effort to pry open the closing pincers or smash through the ring of encirclement. It has been necessary to weaken such German groupings without delay in order to prevent them from interfering with the offensive.

One Soviet tank unit, moving along a vital main highway, emerged near a railway junction and seriously threatened the flanks and rear of a big German grouping. Seeing the danger, the Germans massed a strong force of 130 to 140 heavy tanks, of which number about 20 per cent were Tigers and Panthers. These they hurled in the flank of the Soviet unit advancing on a wide front. This maneuver was aimed at cutting off the Soviet spearhead.

During the first days of the battle the enemy succeeded in driving a wedge of several kilometers deep into positions of the Soviet troops and emerged on the key highway. Further penetration by German tanks on the highway and neighboring sectors threatened to annul all of the successes previously gained by the Soviet forces. The situation thus created was critical for both parties attempting to annihilate one another from the flank and rear and forced them to fight with their fronts reversed.

Extraordinary measures had to be adopted to cut off the German spearhead. Tanks were naturally the only force that could counter and maneuver or forestall it. Thus a tank unit was called in to prevent the spreading of the enemy tanks.

The commander of the tank unit received an order for action while he was still disembarking and while many machines were still en route. Without waiting for a complete concentration, the unit commander moved forward with only a few dozen tanks. During the night he covered more than 30 kilometers over poor roads and before daybreak intercepted the enemy on the highway. The main force of his tanks and reserves, comprising approximately ⅓ machines, he posted near the road. Smaller groups covering the highway on the flanks were from 5 to 6 kilometers away. Thus the whole of the surrounding neighborhood was under observation and fire. The enemy could evade battle only by undertaking a deep outflanking maneuver which was hardly probable in view of the swampy and woody character of the terrain on the flanks.

As soon as the battle started, the Germans aimed their main blow on the left flank, where the highway was covered by tanks under Lieutenant Pavlov. A small group of the enemy succeeded in forcing a passage and attempted an encirclement of Pavlov's and the neighboring unit. The tank unit, finding itself in a half circle, fought fiercely until evening. Soviet tanks counteracted the maneuvers of the enemy tanks and cut off the motorized infantry, without which the Germans could not derive any benefit from their temporary success.

Simultaneously, new lines of defense were sought and fortification work commenced. When darkness set in Soviet tanks withdrew 4 kilometers and again took possession of key positions. In three days fighting the Germans lost another 38 machines and were considerably weakened. Meanwhile, fresh tank and infantry units concentrated behind the defending units. When the German attacks wore down to where not more than 6 to 8 machines were participating in the assaults, the Soviet troops renewed the offensive. During the first days of the fighting, they had advanced from 25 to 30 kilometers and enveloped a strong German grouping from the flank. To avoid encirclement the Germans finally began a disorderly retreat. Thus we see that in a defensive battle, a tank unit in some cases may constitute an important link in the general plan of the offensive. In such a case, it is not employed to accomplish the main objective, but rather as a means to wear down fresh enemy tank units.

*By cable to THE CAVALRY JOURNAL from War Department U.S.S.R., Moscow, April 26, 1944.

# The Dnepr Crossing

## by Major P. Milovanov, Red Army

THE Battle of the Dnepr enriched the experiences of Soviet forces in overcoming water barriers. The struggle at those points on the Dnepr, which were strongly fortified by the enemy, is of particular interest. All stages of the epic crossing were complicated and required military prowess.

One Soviet division reached the Dnepr at a point where considerable forces of the enemy occupied a number of heights on the right bank. The divisional commander was faced with the problem of organizing the crossing and securing a firm foothold on the opposite bank. There was a possibility of making several rafts and mobilizing a small fleet of rowboats to ferry a group of infantry and a number of guns across the river. However, the Soviet commander realized that this group could not hold out for long on the opposite side. He decided, therefore, to bring up sappers and their engineering materials and with their aid transfer the main forces of the division in the shortest time possible.

The crossing operation began with reconnaissance activities. The division commander, accompanied by his regimental and engineering officers, personally inspected both banks in this particular sector. The narrowest spot of the Dnepr was opposite the inhabited point of Khodorov, situated on the west bank. All approaches to the river at this point were covered with woods. Khodorov itself, as an important junction of highways, was strongly defended by the Germans. The commander selected an area left of Khodorov as the springboard for his forces. There was an island in the middle of the river, which almost ran into a sandy tongue of land on the west bank. Thick bushes and an oak grove lay before steep heights. The bushes and grove permitted the Soviet forces to concentrate secretly for an attack.

While the officers reconnoitered, the Soviet sappers retired to a village on the east bank to collect the boats and build rafts. The boats and four rafts for heavy cargo were ready by dawn of the following day.

The Soviet forces shammed a crossing exactly opposite Khodorov. Meanwhile the chief of staff and the senior engineering officer worked out a schedule of the true crossing. Similar work was done in the regiments. It was decided to transfer two infantry regiments the first night. The third regiment and the artillery would cross over the following night.

Lt. Colonel Lamochkin, the senior engineering officer in the division, reconnoitered the crossing area again with his sapper officers. The landing spot on the opposite bank was selected and the course for the boats to follow in the darkness marked out. Lamachkin ap-

**Red Army troops cross the Dnepr north of Kiev, October, 1943. This crossing made possible the encirclement of German troops in the Korsun-Shevchenkovsky area.**

pointed his senior sapper officers to take charge of activities on the boats and rafts during the crossing.

When night fell, the false crossing was launched. Boats were lowered into the water and the sappers made a great deal of noise with their oars. This distracted the attention of the Germans from the true area of the crossing. The enemy sent up flare rockets and opened fire on the east bank. At the same time, Lt. Colonel Lavrovsky and his men started across the river. Reconnaissance scouts had already reached the opposite bank. Sappers helped to load and unload the guns and haul them onto the sandy bank. The regimental officer remained among his battalions and directed them all the time.

In similar fashion, the second regiment crossed undetected by the enemy. By dawn both infantry regiments with their guns, munitions and food supplies were on the right bank. The operation had been so successful that the Germans only learned of Soviet troops concentrating on the west side of the river when the attack began. This sudden onslaught of the Russian forces, supported by heavy artillery fire, took the enemy by complete surprise. Toward noon the Germans were driven off the heights by the river, and the Soviet infantry battalions entrenched themselves in their new positions. This advance secured a *place d'arme* sufficient for concentrating the division and widening its base of operations on the west bank.

That day Junkers 88 bombers appeared twice, apparently in an endeavor to find and demolish the boats. The Germans, however, could not discover the exact spot of the crossing from the air or the ground. The Soviet sappers had done a magnificent job in camou flaging the boats and rafts which were hidden away before daybreak. The Red Army men, except camouflaged observers, hid in the bushes and the oak grove. The Germans kept firing their guns throughout the day, during which time only one Soviet boat was damaged.

The third infantry regiment, the artillery and several batteries of an antitank unit crossed the Dnepr the second night. The crossing this time was more complicated. The Germans swept the river with their searchlights and fired at the boats and rafts, but the Soviet guns on the east bank silenced most of the German machine guns, located on either side of the captured *place d'arme*.

Thus in the course of two nights the Red Army division crossed the Dnepr at a point where it was 400 meters in width. The Soviet forces lost three men killed and five wounded, several boats and a raft.

## Conclusion

The conclusion that may be drawn from this operation is that if the enemy has organized a formidable defense on the opposite bank of a river, the transport of manpower and matériel in *small* groups must be conducted *only* under favorable conditions; otherwise, the operation will fall through. The enemy will rout every *small* group as soon as it reaches the bank.

It is also clear that when weak forces of the enemy occupy the opposite side or the opponent is demoralized by the retreat, the crossing must be carried out without loss of time even though the pontoon units are absent. The water obstacle must be overcome at once before the enemy has time to restore order in his ranks and bring up reserves.

# Employment of Tank D

by Colonel Peter C. Hains, III

IN May of 1940 the German blitzkrieg of France was predicated on fast moving armored divisions coöperating with dive bombers and infantry. The overwhelming successes of the Panzer forces were a challenge to the resourcefulness and inventiveness of military leaders all over the world. The antitank doctrine of the United States Army at the time of the fall of France was contrary to our historical military policy in that it implied a passive defense, rather than offensive action. Only the armored divisions thought in terms of aggressive methods to combat tanks.

General Marshall issued a directive to his staff: "Find a solution to the problem of defense against armored forces—using an *offensive* weapon and organization." As a result of this directive, tank destroyers, armed, equipped and trained for the specific mission of destroying hostile armor, were created. The development of American tank destroyer doctrine has had great influence on the British antitank doctrine, and it is pertinent that both Russian and German doctrine has developed along similar lines.

The first tank destroyer was an improvisation in the form of a half track with a 75mm gun mounted facing to the front. It is interesting that the idea came partly from a French ordnance designer, who related the successful use of an old 75mm gun mounted on a five ton truck. This expedient tank destroyer was adopted in order to make the best use of matériel available, and to provide a substitute for the ideal destroyer, in order that field tests might be instituted and tactical principles evolved at the earliest possible date.

Prior to the development of the tank destroyer, the best known defense against tanks was the use of other tanks to combat them. This was an expensive and unsatisfactory method. In June of 1941, the antitank theory received its first real encouragement when the Germans, employing antiaircraft and other artillery, destroyed over two hundred British tanks near the Egyptian-Libyan frontier.

Another expedient tank destroyer was the 3"-AA gun, mounted on the M-4 tank chassis. This destroyer, known as the M-10, has proven itself in combat, in spite of its limitations.

Concurrent with the development of a self-propelled gun, utilization was made of the towed gun. During this early period, both the 37mm and the 75mm were

An M-10 tank destroyer, mounting three-inch gun, speeds to the front to engage Nazi tanks. Italy, November 6, 1943.

Signal Corps Photos

A tank destroyer fires as artillery from a dug-in position in the Mignano Sector, Italy. Tank destroyer 3-inch guns like this one are using regular artillery sights. Photo, December 12, 1943.

# Destroyers

capable of destroying the tank of their period at close ranges. Since this time, developments in armor have been countered by the development of the higher velocity, heavier caliber, antitank weapon, both towed and self-propelled.

### Principles of Employment

In any discussion of tank destroyers and their employment, the primary mission of the tank destroyer must be kept uppermost in our minds. To quote Training Circular No. 88, WD, 24 June 1943:

"The primary mission of tank destroyer units is the destruction of hostile tanks by fire of a superior mass of guns." This destruction is accomplished by *direct* fire.

Although artillery of 105mm and larger caliber are effective against tanks when direct hits are scored by indirect methods, this method has not proven successful as a means of stopping hostile armor. Training Circular No. 125, 13 Nov. 1943 states, "The primary mission of tank destroyer units is to destroy enemy tanks *by direct gun fire.*"

In analyzing tank destroyer doctrine and discussing the principles of their employment, one should first consider the capabilities and the limitations of the weapons and equipment of these units. Destroyers are broadly divided into self-propelled and towed guns. These guns are high velocity, flat trajectory weapons, capable of penetrating all known armored vehicles at normal battle ranges.

There is available ammunition of various types, including HE, AP, explosive APC and Smoke, to accomplish the various missions. The gun is characterized by great accuracy as a direct fire weapon owing to the small dispersion of its shot group, excellent direct fire sights and an improved power traverse.

### Equipment

Since the first inception of the tank destroyer idea, steps have been taken consistently to develop and produce a mount with specific desired characteristics which would include superior cross-country mobility, sufficient flotation to permit employment in varied types of terrain, and speed equal to or greater than that of the opponent that it is designed to destroy. The expedient M-3 with the 75mm was unsatisfactory. The expedient M-10, while possessing these characteristics to a greater degree, failed to possess them to a sufficiently high degree.

The prime mover for the towed gun is, at present, the half-track. This is, admittedly, an unsatisfactory expedient, as in many cases the half-track, cannot negotiate terrain satisfactorily, or must do so at very slow speeds.

**The crew of a towed gun goes into action during training. Towed guns are vulnerable when changing position, because they lack the armor and maneuverability of the self-propelled gun. Best protection is afforded by digging in.**

One point in connection with the speed of the self-propelled destroyer should be emphasized. This speed represents reserve power. Speed should be utilized only when conditions require rapid movement. Normally, destroyers in contact with hostile forces will move *very slowly*, in order to reduce dust and avoid attracting attention. However, when the occasion arises, it is capable of great changes of pace, permitting rapid movement to threatened areas; permitting quick changes of position when discovered by the enemy; and permitting maneuver to stop hostile armor.

Tank destroyers are provided with light armor as a protection against small arms, machine guns and fragments. Tank destroyers should never attempt to fight as tanks, since their armor is not designed to withstand antitank weapons. It is interesting to note, however, that the M-10 destroyer has armor characteristics which make it comparable to the German Mark III and Mark IV tanks, both of which have proven themselves extremely capable in their rôle.

In discussing equipment, no reference has been made to the auxiliary weapons and the reconnaissance and general purpose vehicles, since they are similar to those of other arms. In summation, attention is called to the requirements laid down for the tank destroyer as a weapon. To quote General A. D. Bruce, who commanded the Tank Destroyer Center from its inception until May, 1943:

> "What we are after is a fast moving vehicle, armed with a weapon with a powerful punch which can be easily and quickly fired, and in the last analysis, we would like to get armored protection against small arms fire so that this weapon cannot be put out by a machine gun."

### Organization

In order to understand the employment of tank destroyers, it is necessary to know something about the organization of these units. The primary tactical unit is

the battalion. Tank destroyers should normally be employed *by battalion*. Admittedly there are situations which indicate employment of smaller tank destroyer units, but the temptation to do this must be carefully analyzed by the higher commander. The employment of smaller units seldom gives good results and frequently fails.

The battalion includes a headquarters company, and three gun companies and attached medical personnel There is a difference between the towed and the self-propelled battalions. The towed battalion includes in its headquarters company, two reconnaissance platoons. The self-propelled battalion includes a separate, organic, reconnaissance company of three platoons and a pioneer platoon.

*There are considerably more guns in a tank destroyer battalion than there are in a field artillery battalion.*

Group and brigade headquarters are provided in order to facilitate the tactical employment of massed tank destroyers. A group is suitable for assignment to a corps, and a brigade is appropriate for the tactical employment of a number of groups against a strong armored force. A recent Army Ground Force directive prescribes that groups be used *tactically*, as they are not designed, organized nor equipped to perform the functions of administration and supply.

The platoon is the basic fire unit of the destroyer organization. The platoon includes a small security section, mounted in lightly armored and unarmored vehicles, whose mission is the close-in defense of the guns against infiltration by enemy infantry. The platoon leader assigns position areas and sectors of fire to his guns, coördinates these positions within his mission, and controls the time of opening fire, the selection of targets, the distribution of fire, and the occupation of alternate and supplementary positions. The guns in a platoon should always be placed so as to secure depth within the platoon position, to obtain flanking fire with a part of the guns, to cover the dead space of one gun by fire from another, and to obtain surprise and deception in opening fire.

### Employment by Higher Command

In discussing the employment of tank destroyers from the standpoint of the higher commander, their missions are divided into two general categories: the *primary* mission—the destruction of hostile tanks by direct gun fire, and the *secondary* missions, which are numerous.

Secondary missions include the employment of the guns to reinforce or supplement those of the artillery, *when it can be foreseen that they will not be needed in their primary rôle*. They may be used to reduce prepared positions, concrete emplacements and machine gun nests by direct gun fire. At night, they are extremely effective in knocking out machine guns, located by observation of the source of the tracer elements. They may be employed on roving gun missions, and are effective in both defense and assault of beaches.

In general, self-propelled battalions are more suitable for attachment to armored divisions, and towed battalions for attachment to infantry divisions. *This is not a rule,* and frequently the reverse may be the case. When available in the theater, one or more battalions, in addition to those attached to divisions, are kept under corps or army control to provide a mass of tank destroyers to meet the hostile armored attack, as it develops. If some destroyers are to be emplaced initially to cover the deployment of the mobile destroyer reserves, it is preferable to emplace the towed gun and use the self-propelled gun for the maneuvering force. Destroyers held in mobile reserve, whether employed on a secondary mission or not, should push vigorous reconnaissance for routes to and position areas in the probable localities of employment on the primary mission. For this reason, battalions used as artillery are

**A tank destroyer crew receives instructions before proceeding into battle. The missions of tank destroyers are divided into two general categories: the *primary* mission — the destruction of hostile tanks by direct gunfire; and the *secondary* missions, which are numerous. In general, self-propelled battalions are more suitable for attachment to armored divisions, and towed battalions for attachment to infantry divisions.**

not attached, but fill the traditional rôle of reinforcing artillery. The employment of towed guns differs from the employment of self-propelled guns, primarily in that towed guns have less battlefield mobility and less armor protection. However, they are more easily concealed on the battlefield.

The decision to employ tank destroyers rests with the higher commander. The decision of *how to accomplish the mission assigned,* rests with the tank destroyer commander. Tank destroyer commanders are always prepared to make recommendations and submit plans for their employment.

To quote from Second Orientation Conference at Fifth Army Headquarters, 14 November 1943:

> "To obtain the best results the commander should assign the Tank Destroyer unit a mission within its capabilities, then let the unit commander determine the best way of accomplishing the mission. The trained tank destroyer man is best qualified to determine the method and means to get the job done."

Again, from Training Memorandum, Headquarters, Fifth Army, 20 October 1943:

> "The same errors made in the Tunisian Campaign are being made in the employment of tank destroyer units in this theater. Tank destroyer units are employed without regard to tactical unity. Guns, sections, platoons, and companies have been sent on missions and otherwise disposed, without consulting or notifying the appropriate commanders. Tank destroyers have been ordered to assault frontly by movement, enemy gun positions, and in one case, a town held by the enemy. In another instance, a battalion, *without the knowledge of its commander,* was disposed as follows: one company on the left flank of the unit, another company on the right flank, and a third sent on an amphibious operation."

### TD Reconnaissance

Hostile armor usually holds the initiative, at least locally, and, for the time being. Tank destroyers gain the advantage through thorough reconnaissance, preselection and preparation of positions, and routes of approach thereto. Complete and thorough plans must be made, and their revision is continuous.

To insure the deployment of tank destroyers in preselected firing positions at the proper time, the reconnaissance element is vital, and to quote Training Circular 88, *"should not be detached for other purposes."* These reconnaissance elements select the routes over which the battalion must pass to reach the various areas of employment. They indicate the general position areas for the gun companies, based on information of the enemy's movements, a thorough terrain study, a knowledge of the organic antitank defense, and the mission assigned to the battalion. After the position is selected, reconnaissance to gain contact with the armored elements should be vigorous. Tank destroyer reconnaissance, once having gained contact with the hostile armor, must maintain this contact and keep the battalion informed of the developments in the hostile situation. During the fire fight some reconnaissance elements will remain in contact between the hostile armor and the friendly guns, while other portions locate the flanks of the armored thrust. When tanks are stopped by direct gun fire, reconnaissance continues or reëstablishes contact with the hostile armor, prepared to select new routes and position areas from which the gun companies may continue the fire fight. This is pointed out in order to show the needs of the destroyer battalion for its organic reconnaissance. All too often in the past, tank destroyer reconnaissance has been diverted to other uses. When this is done, it should be with a clear understanding of its serious adverse effect on the proper employment of the gun companies.

### Towed and Self-Propelled Guns

In general, the towed gun is best fitted for employment with infantry divisions, or in situations where it may be dug in and emplaced initially. Its lack of mobility must be compensated for by protection afforded by digging in, and by painstaking concealment. It is preferable to emplace towed guns under cover of darkness or smoke. They are very vulnerable when changing position, because they lack the armored protection and the maneuverability of the self-propelled gun. Their fires should be used to reinforce and deepen those of the organic antitank weapons. When towed guns are held mobile, position areas must be selected and fully prepared, to include such details as the preparation of range cards, and these positions must be occupied prior to the near approach of hostile armor.

Normally, the missions of a towed battalion will be those of strengthening the existing antitank defenses, protecting flanks opened to hostile armored attack, protecting artillery position areas and rear installations, constituting a mobile reserve against a counterattack and employment on their secondary missions, where the enemy situation permits. Where the front is wide and the road net poor, there will be a temptation to commit all of the towed guns initially. This must be balanced against the desirability of retaining a portion of the battalion mobile so as to permit the massing of the maximum number of guns against hostile armor, and to avoid leaving guns emplaced where no tank attack develops.

Self-propelled guns are well suited to employment with armored divisions and to furnishing mobile elements to infantry divisions for the destruction of located tank thrusts. They are capable of being dug in, terrain permitting, or of occupying cover positions adjacent to their fire positions. In the latter case, the fire position is occupied at such a time as to avoid disclosure, but after the direction of the hostile armored thrust is determined.

Routes to and position areas for self-propelled guns

**The towed gun, well fitted for employment with infantry divisions or in situations where it may be dug in and emplaced initially, should be well concealed. Movement is preferable under cover of darkness or a smoke screen.**

must receive the same careful preselection and preparation as those for towed guns. Self-propelled guns may occupy alternate or supplemental positions under fire, and are especially suited for use as roving guns or roving batteries. When employed on a secondary mission, self-propelled guns may revert to the primary mission with more facility and speed, and are particularly suitable for employment against unexpected flank attacks or counterattacks.

### Opposing Armor and Terrain

Before discussing the tactical employment of tank destroyers with other arms, it is necessary to consider the principles under which the opposing armor will operate.

Generally, there are three methods of attack.

Armored attacks may be preceded by infantry, whose objective is the destruction of the hostile antitank weapons.

In situations that are unfavorable for infantry to attack ahead of armor, the tanks attack in the assault waves, followed by infantry. The mission of the tanks in this situation is to place the infantry on the objective with minimum losses.

The third method is to combine infantry and tanks in the assault waves.

The method to be used by the enemy cannot be determined in advance, and it is unsafe to assume that he will follow the same pattern in succeeding operations. The antitank defense against either an attack or a counterattack by hostile armor, therefore, must be fabricated so as to meet all three of these conditions.

How does a commander determine the number of tank destroyer battalions to employ in a given situation?

First of all, there is the ever present question of evaluation of the terrain. Terrain should seldom be classified as tank proof, although it may be proof against large armored attacks. The guiding principle in determining the number of destroyer battalions required is, *that sufficient tank destroyers must be massed to meet the enemy's armored capabilities.* G-2 must discover and keep track of the enemy armored units available for operation in the particular theater at any given time. I have been asked on occasions to state the frontage that a platoon of tank destroyers should be capable of defending in order to give a measure of the number of platoons required in a given situation. This method of employing tank destroyers is fallacious, and will lead to disaster. *Sufficient tank destroyers must be massed to meet the enemy's armored capabilities.*

### Employment in Antitank Defense

Tank destroyers reinforce and deepen the organic antitank defenses of the infantry division. The mission of the organic antitank defense is the local protection of the troops and installation. The mission of the attached antitank elements is the protection of the command or area as a whole. In order to be effective, all antitank means must be integrated and coördinated carefully. This is a responsibility of the higher commander, but, in turn, it is likewise the responsibility of each lesser commander within the limitations of his mission.

There are two means of antitank defense, passive and active. They must be integrated closely in order to be effective. Among the passive means are reconnaissance, a tank warning system, choice or selection of terrain, cover and concealment, utilization and improvement of natural obstacles, and the construction of new obstacles, principally mine fields.

Our rôle today is principally that of the attack, and our defense against hostile armor will be directed pri-

marily towards stopping and destroying hostile tank counterattacks. In order that destroyers may be massed to meet hostile counterattacks, it is necessary to have adequate information as to the probable strength and direction of the enemy attack.

Since information regarding the hostile armored thrust will be available only after the enemy has committed himself, an adequate tank warning system must be provided. The warning net should be coördinated through the higher headquarters, and subordinate units must at all times have stations open to receive the flash warning message. Unfortunately, training and coördination in the utilization of the tank warning system has lagged. G-2 of the army must keep track of the strength and location of the various enemy armored elements in his theater, and this information must be furnished to the lower units. In Africa we frequently found that our first knowledge of hostile tank attack came from local sources, after the Germans were in the immediate vicinity.

At Faid in February, 1943, German armor amounting to three divisions concentrated over night to make the drive to Kasserine. Even after the first day's battle, the higher command seemed convinced that not more than fifty tanks were capable of being present in the area. Subsequent events indicated that upwards of 200 were present.

At Faid in April, 1943, it was known to the higher command that German forces were withdrawing. However, the combat command that launched the attack to take those passes, lacked this knowledge, and only discovered it when the attack met with little or no resistance.

The choice of ground may be forced on us, but every measure must be taken to improve and strengthen the antitank defense system, in order that local successes by hostile armor will strike against successive opposition and the counterattack be broken and destroyed. This dictates an organization in depth.

The army or corps commander will indicate the general line or area of the barrier system. Mines and obstacles are then used to strengthen the natural barriers and canalize the attack. The intelligent use of dummy guns, faked detonations and flashes, roving guns, and other deceptive means, assist in directing the hostile tank approach into desired channels. The organic antitank weapons of the division, with the attached antitank weapons and aggressive counterreconnaissance, are the active means for antitank defense. German tank attacks are preceded by thorough reconnaissance, and this must be countered with effective counterreconnaissance.

What organic weapons has the infantry division available for its own use?

Usually, the infantry division is reinforced by one or more attached units, including tank destroyers. The defense calls for a cellular disposition of battalion areas organized for all-around defense. Often the organic antitank guns available to the infantry regiment may not be sufficient to strengthen all of the battalion defense areas, and in this case, some of the attached tank destroyer guns, preferably towed, must be emplaced initially to augment the organic antitank defenses.

The advantage of keeping the tank destroyers mobile is that it permits the battalion to mass its guns against the enemy, and if the enemy leads off with infantry

**Towed guns should be committed sufficiently ahead of the attack to insure their being carefully dug in and well concealed, and in time to permit detailed coördination between infantry antitank weapons and the tank destroyer guns.**

and is successful, the mobile guns will not be destroyed before they have a chance to accomplish their primary mission of destroying tanks. On the other hand, towed guns run a strong chance of being immobilized or destroyed by fire, while reaching their preselected fire positions, particularly if these positions are well forward, or where there are insufficient obstacles to slow down the enemy attack. Towed guns should be committed *sufficiently ahead of the attack* to insure their being carefully dug-in and concealed, and to permit detailed coördination between infantry antitank weapons and the tank destroyer guns.

The tank destroyer doctrine is: If the forward infantry units are not protected by obstacles, to such an extent that their organic means are sufficient to prevent them from being overrun by tanks, then some, or all of the towed tank destroyer guns must be emplaced well forward to protect the infantry. When obstacles are such that the forward infantry can protect itself with its own guns, then tank destroyers are best held mobile. Usually, a combination of the two methods will be used, part of the tank destroyers being emplaced initially, in the forward area, while the remainder are held mobile. When a towed battalion is divided by placing the guns within the defense areas, the closest type of coördination, and even attachment, is indicated.

### Employment in Maneuver

The doctrine for the employment of the self-propelled battalion is different. In most situations it will be held mobile, prepared to move to any one of a number of preselected, reconnoitered, *prepared* areas. When the terrain is such as to prohibit lateral maneuver, the self-propelled battalion may have to be split, and the lesser part attached to the unit in whose area it operates.

The division must insure close coördination between the tank destroyers and the supported troops. The division commander assigns a mission which integrates the fire power and the tank destroyers with that of the rest of the division. The tank destroyer commander completes the coördination by reconnaissance of the possible localities in which he may be employed, and by studying the dispositions and plans of the various defense area commanders, insuring that his own plan fits the plan of the troops already on the ground. Energetic personal contact between commanders is vital for obtaining final coördination.

An armored division has more antitank protection than an infantry division. Tank destroyers operating primarily with armored divisions, stop and destroy hostile armored counterattacks, in order that the division may continue its assigned mission.

Tank destroyers usually guard the flanks of the armored division to prevent their being turned by hostile armor. When the enemy may be expected to accompany his tank attack with infantry, it is advisable to form an armored infantry–tank destroyer team to meet it.

Tank destroyers frequently strengthen the armored infantry-armored artillery base of fire, to facilitate the maneuver of the tank elements of the division, and to cover a rally position for unsuccessful tank attacks. Towed guns may follow the tanks well forward for this purpose, being emplaced under cover of the tank attack and dug in. They should be closely supported by armored infantry.

At times, a large armored counterattack is not an enemy capability, and he will use his available tanks as antitank guns, roving guns and in local counterattacks against our armored infantry. Tank destroyers must be well forward to destroy these hostile tanks, and located antitank guns, by direct fire.

Enemy armored counterattacks against units reaching their objectives will come swiftly and with little warning. Destroyers must arrive on the objective quickly and protect the reorganization of the friendly armor. Reconnaissance is pushed well forward at this time, and the tank warning net must be particularly alert.

Although tank destroyers in principle hold ground against advancing hostile tanks, when tanks are defeated, intelligent use must be made of fire and movement to destroy the enemy tank forces.

### As Reinforcing Artillery

Tank destroyers may be employed on a secondary mission as reinforcing artillery, when it can be foreseen that they will not be needed in their primary rôle. It is for the higher commander to decide when to employ destroyers as reinforcing artillery.

The capabilities of tank destroyers as reinforcing artillery are as follows: One destroyer battalion greatly increases the artillery fire power of a division; the effective radius of burst of the high explosive ammunition is rated at 30 yards. While heavier artillery will inflict more casualties, it has been our experience that the German 88mm high velocity gun neutralizes a position as completely as a 170mm. The lack of warning of the high velocity shell compensates for the heavier detonation of the larger guns, at least as far as morale is concerned.

The added range materially deepens and thickens the zone of artillery fire. Interdiction, harassing, and preparation fires can be laid down by tank destroyers in areas beyond the range of the 105 battalion. The flat trajectory increases the probability of ricochet fire. The tank destroyer reconnaissance company may often supplement the artillery OP's. In fact, on many occasions in Tunisia by communication relays, tank destroyer reconnaissance platoon leaders adjusted fire for artillery battalions. So much for the capabilities.

The limitations of the tank destroyer when in the rôle of reinforcing artillery are personnel, matériel and ammunition supply. There are relatively few enlisted men in a tank destroyer company as compared with the

personnel of a field artillery unit of the same number of guns.

The flat trajectory of the tank destroyer gun makes it necessary to find position areas with low masks and for the same reason, much larger areas are dead space than for the 105mm howitzer. The maximum elevation of the tube gives less than the maximum range for the gun unless the spades or rear of the motor carriage is dug in. There is no angle of site drum, and angle of site must be added or subtracted from the quadrant elevation.

There is no range or elevation drum, and the gun can be laid for range only with the quadrant, which is slower. There is no compensation for cant on the self-propelled gun, and the ground on which the vehicle rests must be leveled. In making a decision for the employment of tank destroyers, *keep this fact in mind.* The life of the tube compared to normal artillery, is short. As a consequence, unless the reduced charge ammunition is available, tank destroyer guns that have fired an excessive number of rounds can be expected to be incapable of the proper performance of the primary mission—the destruction of hostile tanks with direct gun fire. The danger of excessive firing occurs when indiscriminate or extravagant indirect fire missions are assigned. There is no grave danger of the tubes wearing out in their direct fire rôle. Finally, flash and muzzle blast of the tank destroyer gun is considerably greater than that of the field artillery pieces.

Training Circular No. 125 states, I quote:

> "When the need for employment of tank destroyer units in a secondary rôle cannot be foreseen in sufficient time for the unit concerned to haul its ammunition, the higher commander must allot sufficient trucks from other sources."

It is expected that normally the indirect fire mission will be anticipated sufficiently in advance to permit dumping of an ammunition reserve at the position. But if this is not the case, normal requirements cannot be met with the transportation available.

When the decision to employ tank destroyers is made by the higher commander, the tank destroyer company will normally reinforce the fires of a field artillery battalion.

The reinforced field artillery is charged with the following responsibilities: Designation of the company position area and approximate direction of fire; determination and designation of at least one place mark in the company area to include, coördinates, altitude, and direction; target area survey to include location, altitude, and identification of a base point, both on the fire chart and on the ground; execution of fire direction by designating targets by coördinates, altitude, ammunition allotted, and time of firing.

Tank destroyers, when acting as field artillery, are trained to fire scheduled or prearranged fires. In order to accomplish this, the tank destroyer company organizes a fire direction center and survey party. The tank destroyer fire direction center is not expected to lay down immediate fire on targets of opportunity. Neither does it mass the fires of the company in the sense that a field artillery fire direction center does. Its only requirement is the calculation of data for prearranged fires. Weather corrections are determined entirely by registration, and the use of metro data is not contemplated.

The communications for this set-up are principally telephone.

Alternate radio communication between the destroyer company and the artillery CP is provided.

Types of fire are limited to percussion and ricochet. Fire for effect is accomplished at center range only. Any portion of the target not neutralized is covered by another sensing.

All officers are being trained in forward observation and axial precision methods.

### Other Secondary Missions

Secondary missions also include the reduction of concrete emplacements and field fortifications by direct gun fire. Accurate, effective fire can be placed on hostile machine guns at night, by laying on the source of their tracer elements. Self-propelled destroyers are well suited for this purpose and for the rôle of the roving gun.

In Tunisia in March, the 1st Armored Division was stopped east of Maknassey by prepared fortifications across high ground at the end of a long valley. During this stabilized situation, the —— Tank Destroyer Battalion moved one M-10 into a wadi on the infantry flank, and located a good OP overlooking the enemy rear. By taking advantage of a forward position, and the greater range of the 3″ gun, it successfully harassed German supply installations and destroyed, by actual count, 48 enemy vehicles in an area beyond our artillery range.

### Conclusion

It should be stressed again that the primary mission of tank destroyer units is to *destroy enemy tanks by direct gun fire.* They are organized and equipped for that specific purpose. Secondary missions should not be undertaken at the expense of maximum proficiency in the execution of the primary mission, nor should training for secondary missions be undertaken until proficiency in the primary mission is attained. The performance of secondary missions is contingent upon three factors: training of personnel; battlefield maintenance and timely replacement of matériel; and tactical dispositions on the battlefield to meet all enemy armored capabilities. To be effective against enemy armor, an adequate tank warning net must be maintained. Continued vigorous reconnaissance by tank destroyer units must be insured, and sufficient tank destroyers must be massed at the proper place in sufficient depth and time to meet the enemy armored thrust.

# Radio Pack for Reconnais

## by 1st Lieutenant Paul E. Koefod, Cavalry*

AUTHOR'S NOTE: The development of the pack frame described in this article was made possible by the backing received from the Reconnaissance Section of the Department of Tactics, The Cavalry School. My thanks are due those members of the Staff and Faculty who lent assistance in the project and to Mr. R. A. Gill, supervisor of the carpenter shop.

THE nature of reconnaissance in our far-flung combat areas is a matter of considerable interest to most cavalrymen. In discussing various reconnaissance techniques, many officers and men returned from the several fronts have described the difficulty of transporting the 510 radio on patrols and to OP's. Some have carried the set like satchels on long marches through desert, mountain and jungle. Others have slung their sets on poles borne on the shoulders of two-man teams. All agree that the toil of these methods is exhausting.

On dismounted patrols during training, it has been noticed that the officer lugging the 510 radio set was invariably slowed by fatigue and the unwieldiness of his load. The speed of the entire patrol was thus reduced to his pace.

Experience on canoe trails back in peace-time summers prompted the question: Why not a pack frame for the radio? A pack frame would facilitate carrying and leave a man's hands free for other things.

*C.R.T.C., Fort Riley, Kansas.

**Shoulder strap adjustment. Load is balanced, hands free.**

A request for permission to make a model pack frame in the shop at Kansas State College was granted. The following demonstration of this model at the Cavalry School secured the facilities of the carpenter and saddle shops for further experiments. With the assistance of Mr. R. A. Gill, a series of experimental pack frames led to the development of the two types illustrated.

Though designed primarily for transportation of the SC Radio 510 on dismounted patrols, these pack frames are not limited to this use. Rations, ammunition and a variety of equipment can be lashed to and transported by means of them. Their design is such that troop carpenters can copy them with tools and materials at hand. Materials are noncritical, and the maximum cost, if all materials be purchased, is approximately $2.00.

**The two-man pack. Both men can run or crawl . . . and fire from any position when wearing the pack frame.**

The type No. 1 pack frame was designed for two-man loads on distant missions. Extra rations or ammunition can be lashed to it, in addition to either unit of the radio. The man using it has both hands free and can make a ten or fifteen mile march without discomfort. It is so balanced and placed upon his back that a man can run or crawl with it. He can fire in the prone, kneeling or off-hand positions with the pack frame in place. Neither unit need be removed from its frame for operation of the set. The units can be connected

# isance Patrols

as soon as placed side by side. The station can be on the air within seconds.

The type No. 2 pack frame was designed for one-man loads on shorter missions. However, its use in two-man loads provides a large space for rations and other supplies needed by patrols out for long periods of time. The man carrying has both hands free, and a "tump line" (head harness) is provided to make carrying easier. When observing, firing, resting or operating the set, the carrier has only to slip the tump line onto his chest to provide freedom of movement for his head. He can also rest his neck in this fashion, carrying the entire weight by the shoulder harness.

Operation of the radio as a "walkie-talkie" is an especial advantage of the type No. 2 pack frame. In addition, only one man is burdened with a load. The units of the set are connected when placed on the pack frame, and the mike and phone combination can be carried in the pocket, plugged in and ready. The station can be opened by extending the aerial and switching on the power. To place the aerial in a vertical position, if necessary, the operator-carrier need only bend forward slightly at the hips.

Hardwood (ash, hickory or oak) provides the best materials for the frames. Softer woods are not recommended, for they will not stand rough use or heavy loads. Nonrusting screws should be used to hold the frame together and for attachment of the harness. Web belting (2″) provides the cheapest and best shoulder and head harness and lashing straps. Tongueless buckles should be used to provide adjustment of shoulder and head harness and for fastening the lashing straps. Such buckles are most easily adjusted and will not slip. Four-inch wide strips of heavy canvas stitched to triple or quadruple thickness make comfortable form-fitting back rests. These back rests transmit the load to the back, permitting no part of the load to touch the body. The resultant air space provides for circulation between the body and the load. For specifications and design, see the accompanying worksheet and illustrations.

Experiments and experience have proved the practicability of these pack frames. They can be made easily by unit personnel and they will speed and simplify the work of reconnaissance units everywhere.

(Editor's Note: Packboard, Ply Wood, was standardized for the Army on 18 December 1943, and is now issued to infantry, engineer and medical units. The Cavalry Board is investigating the use of the standard packboard by Cavalry units.)

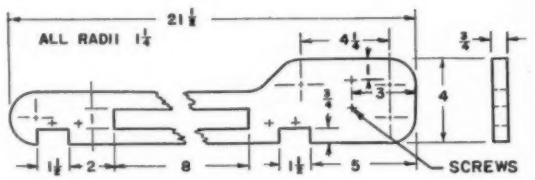
### Assembly of Koefod Pack Frame

*TYPE NO. 1*: Cut side members and end cross pieces to specifications and assemble by means of two 2½″ No. 7 flat-head screws in each end of cross pieces. While assembling, adjust frame to square. Cut and notch spreaders as specified and assemble to undersides of end cross pieces by means of three 1½″ No. 7 flat head screws in each. Ends of spreaders are attached to side members by two 2″ No. 7 flat head screws. Cut arch brace and assemble between broad ends of side members as indicated by means of two 2″ No. 7 flat head screws in each end.

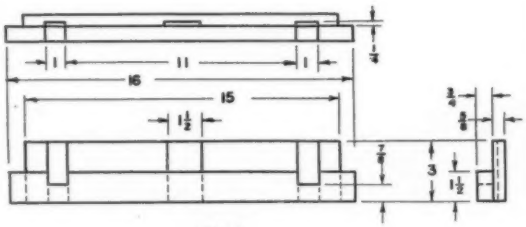
Drill all screw holes and countersink. Use rust-resistant screws and lubricate screws with beeswax.

Fold ends of shoulder straps under and attach to center of under side of top spreader by means of four 1″ No. 7 flat head screws in each. Fix ends to spreader so that shoulder straps extend outward from each other

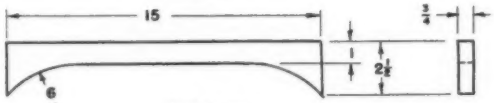
***Top.*** **One-man pack. Load is carried high and well balanced. Attachment and adjustment of tump line are shown.** ***Bottom.*** **Tump line is dropped to chest during transmission and for rest. Station can be put on the air quickly.**




SIDE
2 REQUIRED

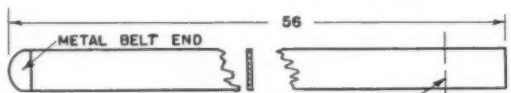


END
2 REQUIRED

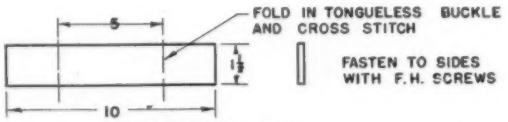


BRACE
1 REQUIRED

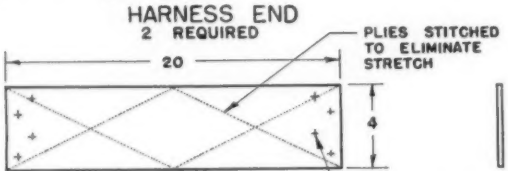
SHOULDER STRAP
2 REQUIRED




PACK STRAP
1 REQUIRED FOR LASHING



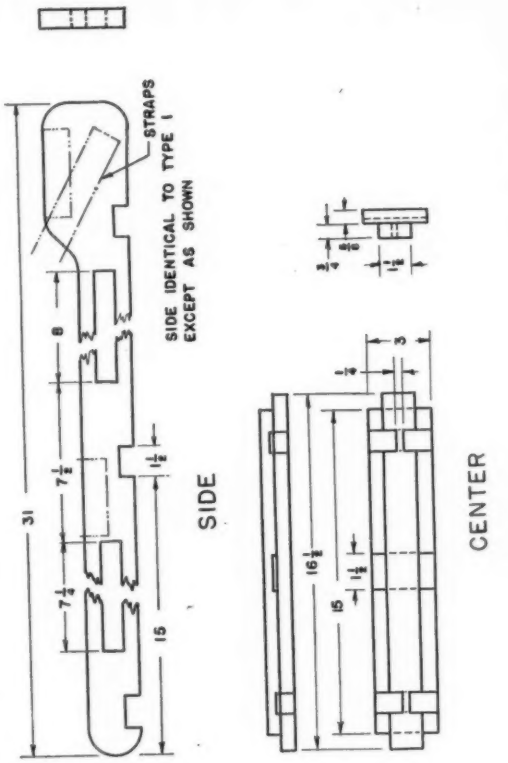

HARNESS END
2 REQUIRED

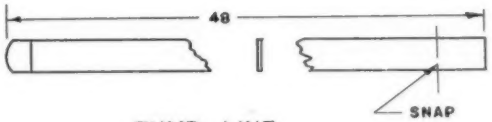



BACK BAND
2 REQUIRED

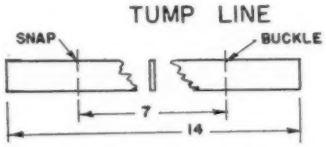
ASSEMBLE WITH F.H. WOOD SCREWS

KOEFOD PACK FRAME
TYPE 1

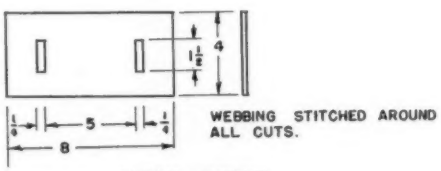



TUMP LINE




TUMP END

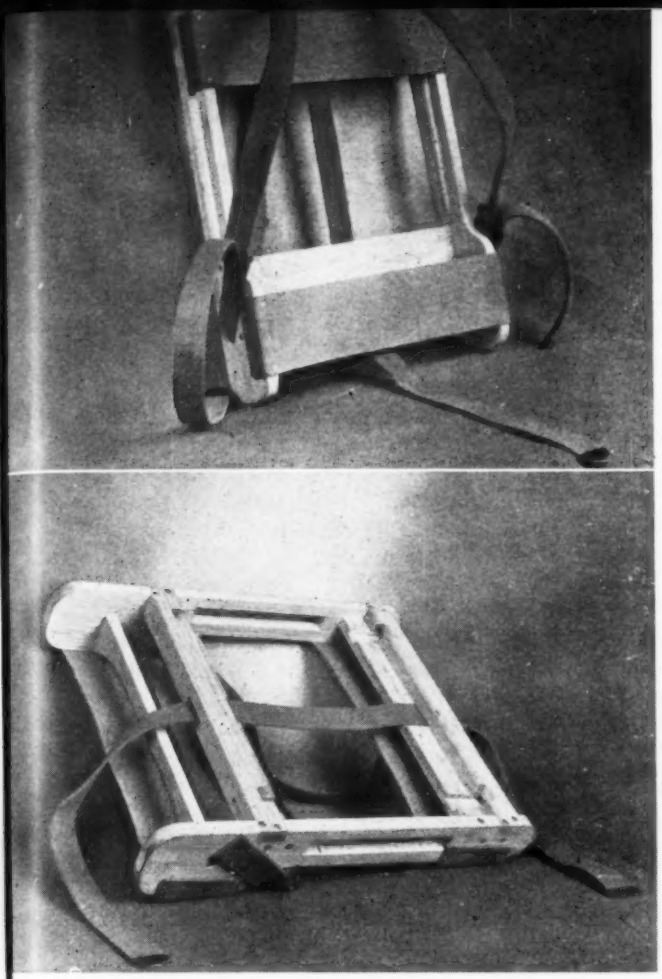



HEAD PIECE

PACK FRAME 2 IS BUILT LIKE 1 EXCEPT FOR PIECES SHOWN,

PACK STRAP 102 INCHES LONG REQUIRED

KOEFOD PACK FRAME
TYPE 2



**Type No. 1. Two-man pack. Back of frame shows web back bands and adjustable harness. Note attachment. Front of pack frame shows recess for set unit and method of attaching lashing strap. Lashing strap is inserted through slots, buckle end to top.**

on line from center of spreader to 1″ inside top ends of side members.

Cut and stitch back bands as specified and fasten to outsides of side members with ¾″ flat head screws by folding bands over side members 1″ as indicated. Stretch back bands tight.

Fasten buckle shanks of shoulder harness to outsides of broad lower ends of side members at angles as indicated. Use four ¾″ No. 7 flat head screws in each.

The lashing strap is inserted through the slots in the upper and lower spreaders as indicated, buckle end to top.

Place either unit of the SCR 510 in the socket provided between the side members and end cross pieces, handle up, and fasten lashing strap over the unit.

*TYPE NO. 2:* Assemble the Type No. 2 pack frame as Type No. 1 except for center cross piece and spreader (see worksheet and illustrations). Shoulder straps are attached to *center* spreader in same manner as in Type No. 1.

The lashing strap is inserted through slots provided in end and center spreaders from top downward, buckle end up. To place set on the frame (place battery pack at lower end), *raise* the lashing strap in each section and place each unit *under* the lashing strap in its section. Bring free ends of lashing strap up and over set to buckle. Units of 510 set are placed on the frame with handles up and connecting cords to the left. Lashing straps will bind handles on set units and so keep them from rattling.

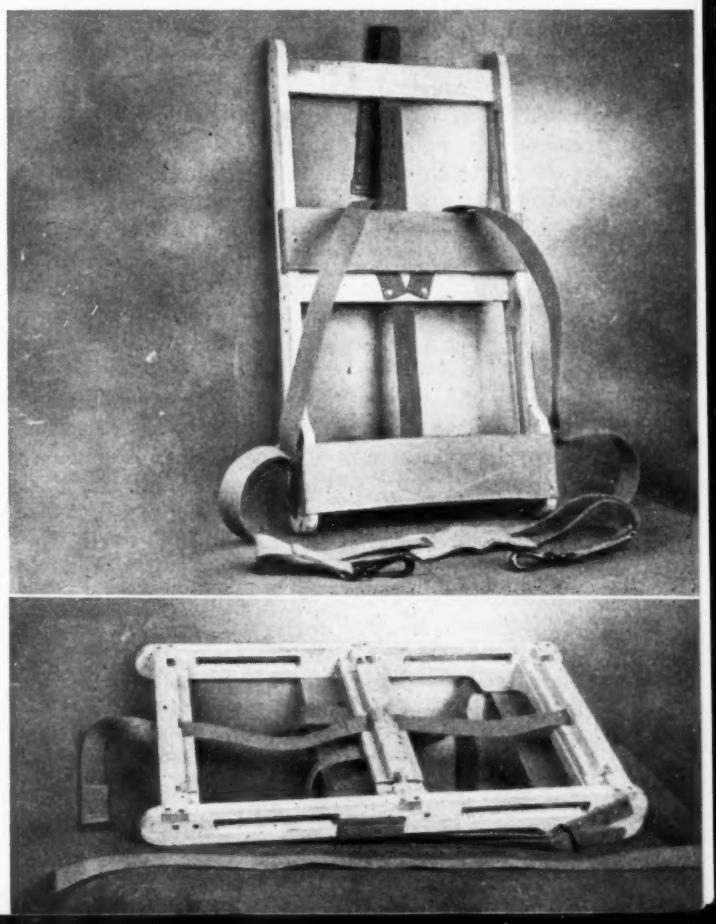
"Tump line" snaps are attached to rings on the upper corners of the battery pack, and the tump line is adjusted to the wearer by means of the tongueless buckle of the short shank portion of the tump line. For tump line see worksheet and illustrations.

Units of the SCR 510 are seated *into* the pack frame between the side members and end cross pieces. This placement of the set prevents shifting when it is lashed in place. The spreaders, notched to receive the lashing strap and "nubs" under each unit, become floor plates to support the units when in place.

Any supplies or equipment desired can be attached to these pack frames by means of their lashing straps and ropes or straps put through the lashing slots in the side members. The lashing slots may be cut with square or rounded ends as convenient.

These pack frames may be painted olive drab or mottled as desired. For dismounted patrols it might be well to mottle both pack frame and radio set.

**Type No. 2. One-man pack. Back of pack frame shows attachment of back bands and adjustable shoulder harness. Tump line with tongueless buckle for adjustment and harness snaps for attachment to rings on battery pack. Front of pack frame shows recesses for units of radio set, placement of lashing strap, and attachment of harness.**



# Science Behind the Soldier

## by Professor J. D. Bernal*

AT the beginning of the war, scientific work in Britain was carried out in three main groups: (1) fundamental science—scientific research unlikely to be of any practical value for long periods, which was carried out mainly at the universities; (2) immediate technical scientific research, mainly in the research laboratories of industrial firms; (3) research controlled by the government through the Department for Scientific and Industrial Research, which was concerned primarily with the intermediate range of technical problems, the maintenance of standards and a number of agricultural and medical establishments.

The only direct military science was in the comparatively small research departments of the Navy, Army and Air Force.

The Royal Society, Britain's premier scientific society, did not form part of the official organization. It remained essentially a meeting place for the leading scientists and an agency for scientific publication. The other scientific societies occupied corresponding positions in their own fields.

### Adaptation to War

The war did not lead to any structural alteration in this scheme, but to its adaptation to the immediate needs of war and to a very considerable shifting of the personnel inside it. Just before the war there was established a national register of scientific and technical manpower in which the qualifications of each scientific worker were recorded. This body gradually became a central clearing house for distributing scientists to those tasks for which there was most demand. Naturally this did not mean that they necessarily continued in their peace-time fields. The war showed, for instance, a much greater demand for physicists than could be met by employing professional physicists and many chemists and biologists occupied themselves with physical tasks.

There was naturally an immediate strengthening of the direct war science establishments, and this has gone on steadily throughout the war. At the same time, however, the work of these establishments was very much extended by turning over other laboratories and institutes, of both the government and the universities, to scientific war work. Nearly every section of the Department for Scientific and Industrial Research, such as the National Physical Laboratory, the Road Research Laboratory, the Building Research Laboratory, etc., are now occupied almost entirely with such problems.

Such an extension of work necessitated corresponding central organizations, and this has been achieved largely by the setting up of advisory councils, composed of eminent scientists, and the appointment of scientific advisers. These have had a triple function. As senior scientists with a wide knowledge of the resources of the country, they have been able to find the men and the institutes most suitable for tackling each problem as it arose. Secondly, they have acted as a form of scientific jury to assess the value of the results arrived at by the various scientific institutes. Finally, they have been able to use their considerable influence to see that scientific effort is most effectively directed and applied.

### Military Fields of Scientific Contribution

The use of science in war is two-fold: (1) increase of the war potential of the country and (2) provision and use of weapons.

The first use is the extension and intensification of peace-time science in order to make for the greatest efficiency of production in the country as a whole, and to do this with heavily restricted resources both of material and labor. This means maintaining and increasing industrial scientific research and medical research, and, even more, because of Britain's increased dependence on home production, in developing practical agricultural research.

In these fields it is a matter of expanding and speeding up existing work. The main innovation has come rather in the application of science than in its discovery. Owing to the new controls in industry and agriculture, it is possible to see that the results of scientific research are applied widely and quickly. As a consequence Britain is better fed and healthier as a whole than in any previous period in her history.

In military science proper, it has not been sufficient merely to increase the scale of work; there have been many innovations in method as well as in detail. Military science has three main aspects: the development of weapons; the countering of enemy devices, and the direct utilization of science in strategy and tactics. In peace-time only the first of these had been extensively practiced. In war it was necessary not only to speed up the processes of developing new and better weapons—aircraft, tanks and guns—but to consider production problems under war conditions, with lack of certain raw materials, use of unskilled labor, and so on.

### Weapons

By the use of research the quality of weapons has steadily improved and production increased with a great economy of time and material. An example of this is the case of gun design. By the rational study of the phenomena of the explosion in the gun, it has been possible to economize both in the quantity of the metal required, which has made a lighter and handier gun,

*University Professor of Physics, Birkbeck College, London; now Scientific Adviser to Combined Operations Command.

and in the quality of the metal, which has saved precious alloying elements. In the use of explosives there have been enormous improvements based on new knowledge of the physical processes of explosion—work largely carried out by men trained in the more abstruse branches of mathematical physics.

### Countering Enemy Devices

Before an actual war breaks out, it is impossible to know exactly what kind of weapons are needed, and even in a war this takes some finding out. Weapons as developed in peace-time are necessarily modified both by practical conditions of war and by the counter weapons used by the enemy. It is consequently necessary to be revising designs continually in the light of experience. Here again, science has played a large part.

In the early part of the war, much was done in countering the various "secret" weapons with which Hitler tried to scare the world. A great variety of mines and bombs with most ingenious fuses had their stings drawn by the application of high speed and heroic scientific research in which a number of workers lost their lives.

In the field of radio research also there has been what is practically a battle of scientists. Each enemy radio device has had to be detected, analyzed and countered in an incredibly short time.

One of the characteristics of the war has been the increasing use of highly complicated scientific apparatus in the front line itself. This apparatus could not just be handed over to troops with only general technical training. It was necessary for the scientists who developed it to follow the apparatus to where it was being used and to analyze its performance in order, at the same time, to train people to use it and to learn how to improve the apparatus itself.

### Operational Research

It was in this way that there began, about the second year of the war, a third and almost entirely new use for science, the actual scientific study and analysis of military operations, a process which is now called Operational Research. In the Navy, Army, and Air Force there are now attached to the commanders in the field operational research groups whose business is to keep close contact with all phases of military operations—bombing, artillery fire, antisubmarine work, communications and transport. These scientists act as a link between the actualities of warfare and the research and development departments attached to war industry at home. They are able to specify more quickly and accurately than could be done before what the real needs of the forces are and to see that they are satisfied. But they are able to do more.

The war has become very largely mechanized, and the performances of various parts of the war machine are analyzable in the same way as factory operations. Statistical methods can be and have been successfully used for calculating the actual effort required to reduce enemy positions by the use of different tactical methods and thus to help to decide the most effective tactics to use. This began even before the war, in the analysis of air combat, and was one of the reasons why the Battle of Britain was won by the Spitfire.

The general method is a straightforward scientific one. Although the actual situations in war are extremely complicated, it is usually possible to isolate a certain number of variables, the value of which can be determined in different actual instances. For instance, aircraft can fly in to attack at different heights, their effectiveness and the loss they sustain as a function of the height can be measured. From a sufficient number of instances, the arrangements giving the greatest advantage can often be found by calculation and checked on by practical trials. The bombing of Germany is now largely being carried out in this scientific way.

It is clear that such use of science in no way diminishes the importance of the decision and skill of the military commanders. It simply provides them with new knowledge as to the probable result of dispositions they choose to adopt and is of assistance to them much as musical theory is to the composer. In recent months there has been an increasing tendency for this union of science and military leadership to become even closer by the attachment of personal scientific advisers to senior commanders. Britain is moving toward an almost complete fusion of the scientist with the fighter at the front and production at the rear.

### Mobilization of Scientists

This great transformation of the use of science has not only been a matter of organization at the top. The actual scientists themselves, many of them through the Association of Scientific Workers, have played a large part. They have insisted that their mobilization for war service should be complete, that long-range schemes of a peaceful nature be put on one side, and that every scientist should be given a chance to be used where he is likely to be most effective.

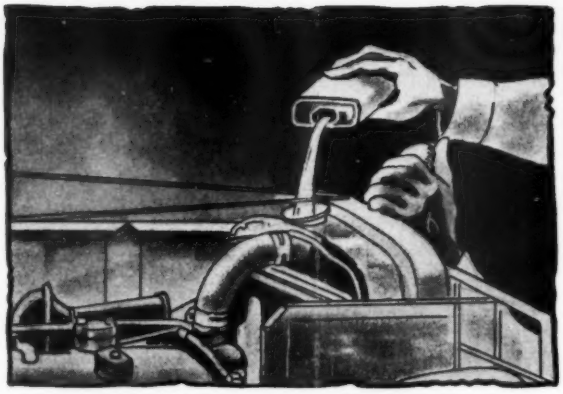
At a great conference on the Planning of Science in January, 1943, a program was put forward for a more rational, effective and closely knit organization of war science. Many earlier recommendations of this group have in fact been adopted, particularly in the appointment of a small body of three scientific advisers to Britain's Ministry of Production, with the general charge of seeing that science is most effectively used in the war effort.

This brief and necessarily general picture of science in the war shows what Britain has achieved and hopes to achieve; but the war is not the effort of any single nation.

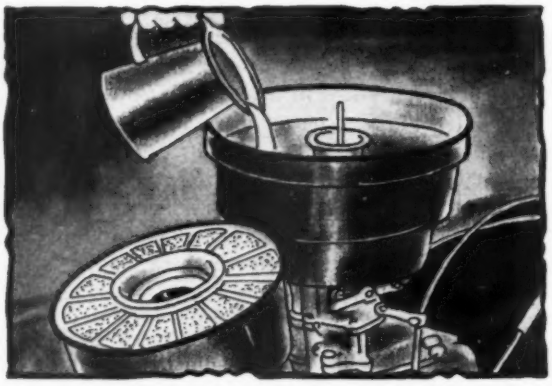
The United Nations are fighting against a common enemy and linked very closely in a common purpose. They require as close a collaboration in the scientific as in the military field.

# DO'S and DONT'S on *Vehicle Care in Warm Weather*

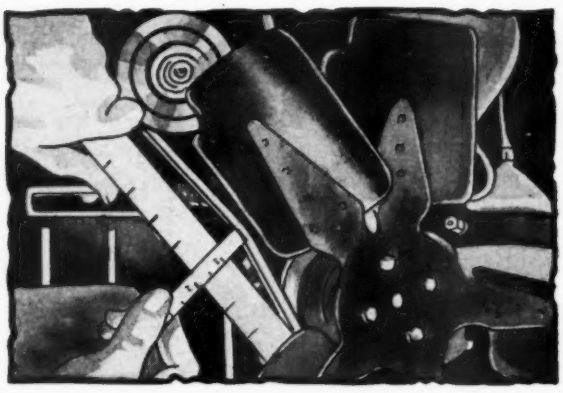
Vehicles have to "sweat-it-out" like everybody else when summer comes boiling along. You can keep them off the "summer deadline" by following the simple precautions outlined on this page.



Flush cooling system thoroughly. Check thermostat. Inspect and replace hose connections if necessary. Fill radiator with clean, "soft" water. Add rust preventive if specified in Technical Manual.

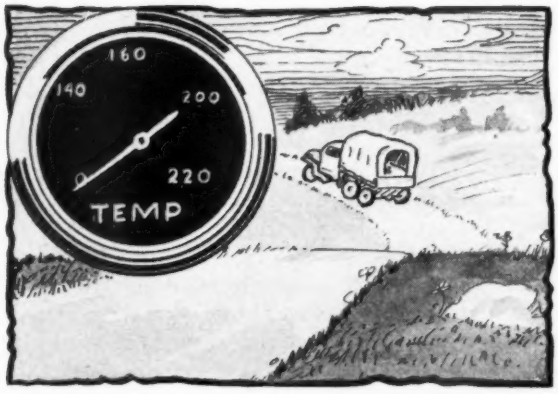


Remove insects and dirt from radiator exterior. Keep exterior of oil pan clean so heat can escape from oil and help cool engine. Service air cleaners and filters more often because of dustier summer air.



Check tension of fan belt and adjust. Belt operates water pump as well as fan and must be right. Inflate tires in morning when they are cool. If tire pressures increase during heat of day, don't deflate.

Replenish battery water more often in summer. It "boils" away faster. Never fill above specified level. Check timing and adjust exactly as specified. Late timing particularly can cause overheating.




Shift to a lower gear to speed up fan and water pump if engine overheats on hard pulls at slow speed in high gear. Keep an eye on the temperature gage. Take corrective action at first sign of overheating.

# Book Reviews

TEN YEARS IN JAPAN. By Joseph C. Grew. Simon and Schuster. $3.75.

America's former Ambassador to Japan has drawn on material from three firsthand sources—his own day-to-day diaries, his personal and official correspondence, and his dispatches to the State Department—to tell the story of the decade of conflict, intrigue, and surprise that culminated in the inevitable tragedy of war.

Mr. Grew's own words best describe the aims of his book: ". . . to present to our people and, I hope, to the people of all the United Nations, a more accurately focused view of Japan than is now widely held, for only through a correct conception of that country and its people can we approach with intelligence the difficult problems which will have to be solved after our military victory is complete. . . . We have been presented for some years past with cumulative evidence of unmitigated subtleties, trickery, brutality, and cynical faithlessness on the part of the Japanese military caste and machine. . . . The present book will not have served one of its purposes, however, if it does not bring home to my readers the fact that there are many Japanese today who did not want war, who realized the stupidity of attacking the United States, Great Britain and other United Nations, and who did everything in their power to restrain the military extremists from their headlong and suicidal aggressions."

Whereas the American public is more or less familiar with the background and temper of their German enemies, they are not so well versed on the subject of the Japanese. Ambassador Grew has spared no effort to give a complete and fair account of his experiences in Japan, in order that his compatriots may envision the caliber of the enemy they are facing. *Report From Tokyo* was a brief, informative volume. *Ten Years in Japan* is a comprehensive book that should be thoroughly digested by all who wish to understand the problems of the east, not only as they affect us in this war, but as they will undoubtedly influence us in the future.

✦ ✦ ✦

NEWS OF THE 45TH. By Sgt. Don Robinson with art by Sgt. Bill Mauldin. University of Oklahoma Press. $2.00.

Sergeants Robinson and Mauldin have collaborated to produce one of the most down-to-earth stories of the soldier in training and at war yet published. It is a little premature to state that they are in Ernie Pyle's class. That takes years of hard work. But Mauldin as a cartoonist, and Robinson as a writer, are certainly well on the way to making names for themselves in human reporting. They are keenly sensitive to the average man's reactions and have a delightful sense of the ludicrous that combine to make their book both realistic and entertaining.

If you enjoyed *Here Is Your War*, you will enjoy *News of the 45th.*

THE GERMAN ARMY. By Herbert Rosinski. Infantry Journal. $3.00.

Dr. Rosinski was a lecturer in Naval and Military Theory at the Naval Staff College in Berlin from 1932-36. After leaving Germany under duress of the Nazi Party, he lectured at Oxford in 1937 and was a member of Professor E. M. Earle's famous seminar in military subjects held at Princeton from 1940-41.

*The German Army* is a rewritten and expanded edition of Dr. Rosinski's earlier book published in England in 1939. It gives the historical background, organization, doctrines, training, strategic ideas and tactics of the German Army. It is a less detailed account of much the same material incorporated in *Axis Grand Strategy;* however, for men who have to take note of the weight and size of a book, Dr. Rosinski's volume has a marked advantage.

✦ ✦ ✦

BATAAN: The Judgement Seat. By Lt. Colonel Allison Ind. Macmillan. $3.00.

Colonel Ind's account of the conditions existent in the islands prior to Pearl Harbor as well as his story of the retreat to Bataan are vitally important additions to our knowledge of that action. There is no evasion in this book, it is a straight-forward record of what was and was not available, a clear and unvarnished picture of what occurred.

Out of the discouraging recital of over-confidence and lack of preparation rises the figure of General "Pursuit" George, then Colonel George, who by dint of his personality impelled his men to the impossible. It is a glowing picture of a hero's hero and his tragic and untimely death.

The author is a capable writer and has produced much more than a mere record of military events. He has created a living history of the men who fought on Bataan.

✦ ✦ ✦

ATLAS OF GLOBAL GEOGRAPHY. By Erwin Raisz. Global Press. $3.50.

With the rise of air power, global geography has changed. Distances are now marked as the plane flies and the shortest distance between two points has become an arc on the contour of the globe. This new vision is the key to the *Atlas of Global Geography*.

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A clear, concise treatment, requiring no previous knowledge of geology, of the geologic fundamentals underlying the most effective military interpretation of maps and aerial photographs. Explains the characteristics of contour maps and aerial photographs, describes landforms of all varieties, and shows how they appear on maps and in photos, and points out significant military features. By William C. Putnam, $1.25.

**THE MILITARY STENOGRAPHER**

Offers practice material for military stenography, with Gregg shorthand outlines for military terms and phrases, solid-matter dictation, and glossary. Covers, with definitions and outlines, court-martial proceedings and terminology, military ranks and functions, and complete service phraseology. By Queena Hazelton, $1.00.

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DICTIONARY OF ORDNANCE TERMS. By H. Strom. Frederick Ungar Publishing Co. $5.00.

There has been considerable demand for foreign language dictionaries covering military subjects. Mr. Strom has coordinated in one volume the terms used in connection with ordnance—arms, ammunition, explosives and other war matériel—in English, French, German, Italian and Spanish.

The first section gives the words in all five languages with an identification number for each group. Indices are given in each language with page and group reference numbers that enable the user to look up a word in any language by taking the page and group number and finding the translation in each of the other four languages.

MILITARY MAPS AND AIR PHOTOGRAPHS. By A. K. Lobeck and Wentworth J. Tellington. McGraw-Hill Book Co. $3.50.

This text is designed to do duty both as a basis for a course of instruction and as a reference book. Its chief purpose is to combine under one cover the information necessary for an elementary course in topographic drawing and a revised use of symbolic drafting as it has recently been developed by the allied engineering industries.

Symbols and maps are reproduced to practically the same size that the student should draw them. Directions, included for use in compiling various kinds of maps, thus eliminate the necessity for a large amount of desk instruction. Ruler, Schunemunk and Mannheim maps are enclosed.

ARCTIC MANUAL. By Vilhjalmur Stefansson. Macmillan Co. $3.00.

This picture of the Arctic as it really is, by one of the world authorities on the subject, was originally prepared to offer the United States Army realistic advice on how to survive when stranded in that generally misunderstood region.

Mr. Stefansson begins with a discussion of our changing attitudes since the days of the Greeks, and discards many of the erroneous old-time ideas of the polar regions. His practical information covers the physical geography, climate and weather, light, animal and insect life, vegetation, shelter (how to build as well as how not to build a snow house), food and drink, clothing, health, diet and travel on land, water, and ice.

26TH DIVISION. Summary of Operations in the World War. Prepared by the American Battle Monuments Commission. Government Printing Office. $1.25.

This account of the participation of the 26th Division in World War I, covers activities of the division through May 1919. Bound in the book is a general map of western Europe. Detailed maps of the various actions in which the 26th Division took part are contained in a pocket within the book. It is an excellent record, in convenient form, and the maps are extremely good.

JAPAN, ITS RESOURCES AND INDUSTRIES. By Clayton D. Carus and Charles L. McNichols. Harper and Brothers. $3.50.

The authors of this comprehensive study of Japan's resources have realistically faced the problems that will be generated in the postwar world by the fact that for years the Japanese Empire has had the greatest industrial capacity in Asia. It is maintained that the security of the Pacific area depends on the utilization of the human, geographic and industrial resources of these islands. This is predicated upon five conditions: complete military defeat and occupation; Allied administration during reconstruction; assurance that Japanese industry, as reconstructed, cannot rebuild her war machine; readjustment of social values; and the abolition of subsidies to uneconomic industries.

There is important material here for possible administrators of occupied territory in the Pacific and for all students of foreign affairs.

TRIUMPH OF TREASON. By Pierre Cot. Ziff-Davis Publishing Co. $3.50.

Pierre Cot has served France and fought Fascism through a long career. As a captain in the French army (1914-18) he received the *Croix de Guerre*. He has served the state as Undersecretary for Foreign Affairs and Minister of Aviation, and the world as President of the International Peace Conference (1936-40). An exile from Fascism since 1940, he has recently joined the new French Consultative Assembly in North Africa.

A number of participants in the military collapse have written of the fall of France, but this is the first book by a government official on the disintegration of the state that was primarily responsible for the military catastrophe.

Whether or not the reader agrees with M. Cot in his analysis of the present National Committee of Liberation, his absolute sincerity and scrupulous efforts to be fair make his book a truly valuable one. He comments:

"The 'citizens' have taken up arms. 'Liberty guides their steps.' If they alternate the *International* with the *Marseillaise*, it is to signify to the world that their sacrifices will serve the interests of humanity as well as the liberation of France."

THE NETHERLANDS. By Hendrik Riemens. Duel, Sloan & Pearce. $4.50.

The Dutch people in their own land have always commanded the respect of the civilized world. Mr. Riemens, Commercial Secretary of the Netherlands Embassy in Washington, deftly interweaves the story of his nation's history and culture with that of their commerce and expansion abroad.

In the handling of the expansion of the East and West India Companies Mr. Riemens permits himself to overlook the fact that his reader may have an analytical mind, and may not be converted to the idea that the end justifies the means. On the whole, however, the book is an interesting introduction to the Dutch, and reveals much of the national psychology, particularly in relation to the war.


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PRIVATE BREGER'S WAR. By Dave Breger. Random House. $2.00.

Those who are already familiar with Private Breger's reactions to camp life in this country will undoubtedly want to see what happens to this incorrigible personality in Britain and on the war fronts. If there are those who have not yet discovered this naïve example of humanity, it is suggested that his early training be investigated before his more recent amusing experiences. He is still the exasperation of noncoms and officers.

BASIC MATHEMATICS FOR WAR AND INDUSTRY. By Daus, Gleason and Whyburn. Macmillan Co. $2.00.

MILITARY APPLICATIONS OF MATHEMATICS. By Paul P. Hanson. McGraw-Hill Book Co. $3.00.

The first of these books has been presented with the idea that the same principles of elementary mathematics are needed for the armed service, war industry and ordinary civilian activities. Chapters cover arithmetic, algebra, geometry, plane trigonometry, and solid geometry and spherical trigonometry.

*Military Applications of Mathematics* serves as a refresher course in the fundamentals of mathematics and a course to prepare students for definite activities in military life. It brings together in one volume the problems likely to be met that can be solved with a background of high school mathematics. The problems are grouped under Army and Navy classification—Maps and Map Reading, Field Artillery, Air Navigation, and Miscellaneous.

OUR EQUINE FRIENDS. By Wayne Dinsmore and John Hervey. Horse and Mule Association. $.25.

DOGS FOR DEMOCRACY. By Thomas Young. Bernard Ackerman, Inc. $1.00.

*Our Equine Friends* is a small practical pamphlet giving a brief coverage of the types of equines, usages, conformation and character of the different species and results of cross breeding. Its purpose is primarily to encourage an interest in breeding in order to increase and improve the waning stock in this country.

*Dogs For Democracy* tells in pictures and text the story of what dogs are doing in the war of today. It is a delightfully presented little book, and will find wide interest among those who have given up their dogs to the army.

STICK AND RUDDER. By Wolfgang Langewiesche. Whittlesey House. $3.75.

Wolfgang Langewiesche, author of *I'll Take the High Road* and *Light Plane Flying*, has written an analysis of the art of flying based on his own flying experience. He believes that the difference between an experienced flyer and an inexperienced one is a matter of images—the experienced flyer "carries in his head truer, more vivid images of the airplane and of 'what really goes on' when he flies it." This conviction has led him to write a most comprehensive description of flying.

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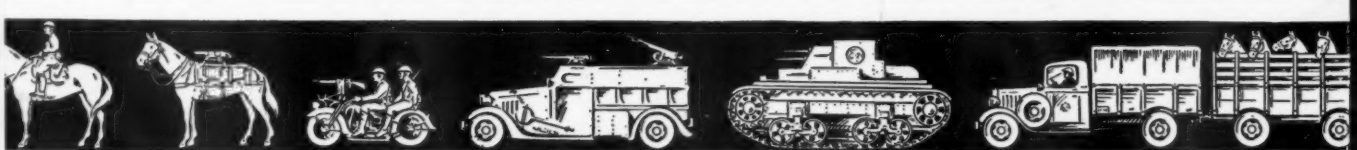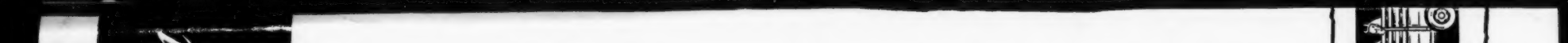
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